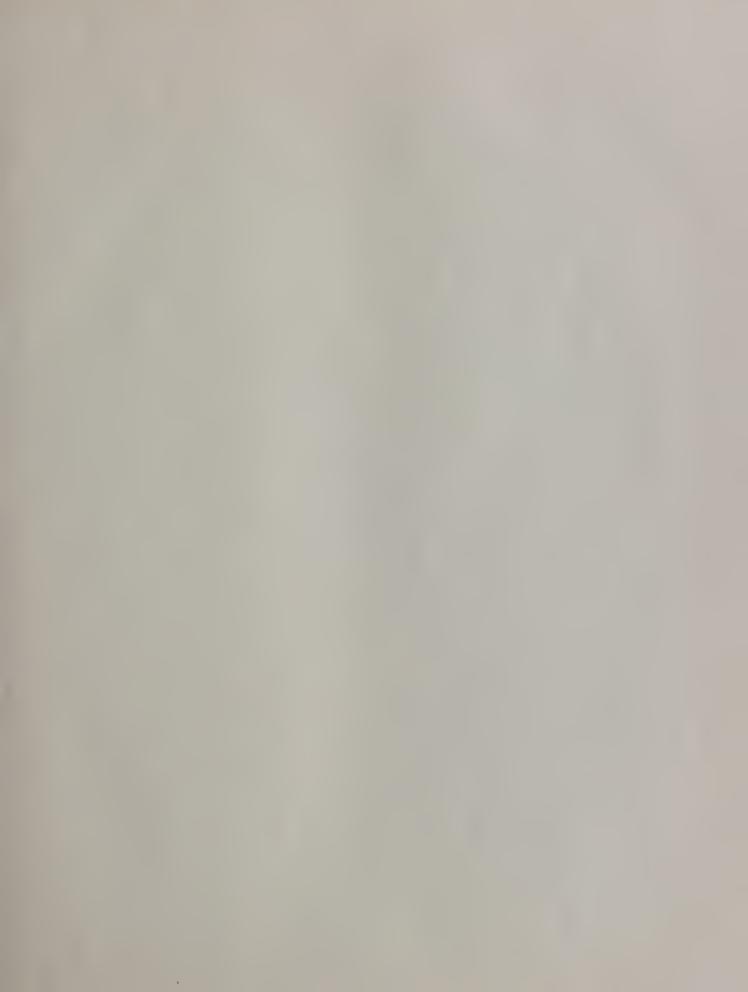
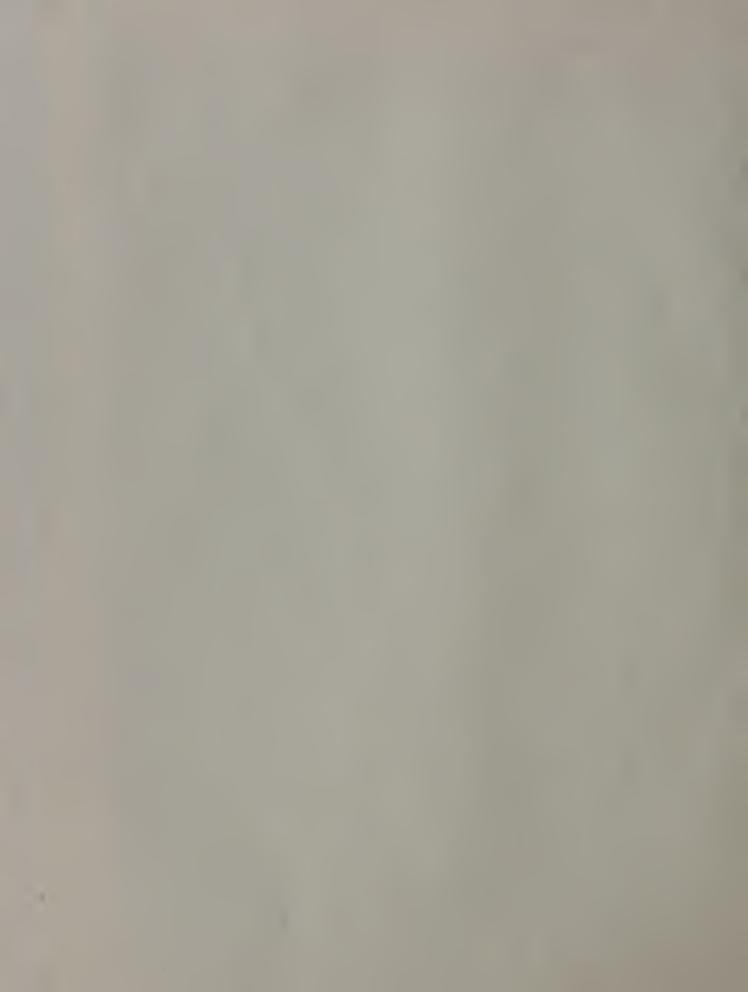
TC 824 C2 A2 no. 177:69 c. 2 LIBRARY
UNIVERSITY OF CALIFORNIA
DAVIS







STATE OF CALIFORNIA The Resources Agency

Department of Water Resources

BULLETIN No. 177-69

WATERMASTER SERVICE IN NORTHERN CALIFORNIA 1969 SEASON

OCTOBER 1970

NORMAN B. LIVERMORE, JR.
Secretary for Resources
The Resources Agency

RONALD REAGAN
Governor
State of California
LIBRARY
UNIVERSITY OF CALIFORNIA
DAVIS

WILLIAM R. GIANELLI

Director

Department of Water Resources

y

FOREWORD

Bulletin No. 177-69 discusses the watermaster service provided by the Department of Water Resources to areas in Northern California during the 1969 watermaster season. Authority to prepare this report is described in the California Water Code, Division 2, Part 4, Chapter 7.

The bulletin is presented in two parts. Part I contains general information about water rights, water supply, service areas, and watermaster duties. Part II contains the specifics of the 1969 watermaster season, including the streamflow in the various service areas, the methods of distribution, and all other information pertinent to 1969 watermaster activities.

William R. Gianelli, Director Department of Water Resources The Resources Agency State of California

State of California The Resources Agency DEPARTMENT OF WATER RESOURCES

RONALD REAGAN, Governor

NORMAN B. LIVERMORE, JR., Secretary for Resources

WILLIAM R. GIANELLI, Director, Department of Water Resources

JOHN R. TEERINK, Deputy Director

This report was prepared by the Northern District under the direction of

Wayne S. Gentry
by
Edwin J. Barnes
Ross P. Rogers
assisted by
Virgil D. Buechler Deputy Watermaster Jerry T. Erb Deputy Watermaster Charles H. Holmes Deputy Watermaster Lester L. Lighthall Deputy Watermaster John A. Nolan
ру
H. J. Nessler Supervising Watermaster
Harvey A. Jorgenson

TABLE OF CONTENTS

FOREW	ORD	Page
ORGAN	ITZATION	iv
ABSTR	ACT	vii
WATER	MASTER SERVICE AREAS IN NORTHERN CALIFORNIA - Figure 1	viii
PART	I - GENERAL INFORMATION	1
	Determination of Water Rights	1
	Description of Watermaster Service Areas	2
	Watermaster Responsibilities	2
	Water Supply	4
	Snowpack as of April 1 and May 1, 1969 at Representative Snow Courses Table 2	5
	Precipitation at Selected Stations - 1968-69 Season - Table 3	6
	Runoff at Selected Stations - 1968-69 Season - Table 4	7
PART	II - 1969 WATERMASTER SERVICE	9
	Ash Creek Watermaster Service Area	11 12 13
	Big Valley Watermaster Service Area	15 17 18
	Burney Creek Watermaster Service Area	19 20 21
	Butte Creek Watermaster Service Area	23 24 27
	Cow Creek Watermaster Service Area	29 31 32
	Digger Creek Watermaster Service Area	37 38 39

PABLE OF CONTENTS (CONT.)	Paga
French Creek Watermaster Service Area	Page 41 42 43
Hat Creek Watermaster Service Area	45 46 47
Indian Creek Watermaster Service Area	51 52 53
Middle Fork Feather River Watermaster Service Area	57 59 60
North Fork Cottonwood Creek Watermaster Service Area	61 62 63
North Fork Pit River Watermaster Service Area	65 68 74
Shackleford Creek Watermaster Service Area	87 88
Shasta River Watermaster Service Area	91 95 99
South Fork Pit River Watermaster Service Area	109 111 113
Surprise Valley Watermaster Service Area	119 122 129
Susan River Watermaster Service Area	141 144 147

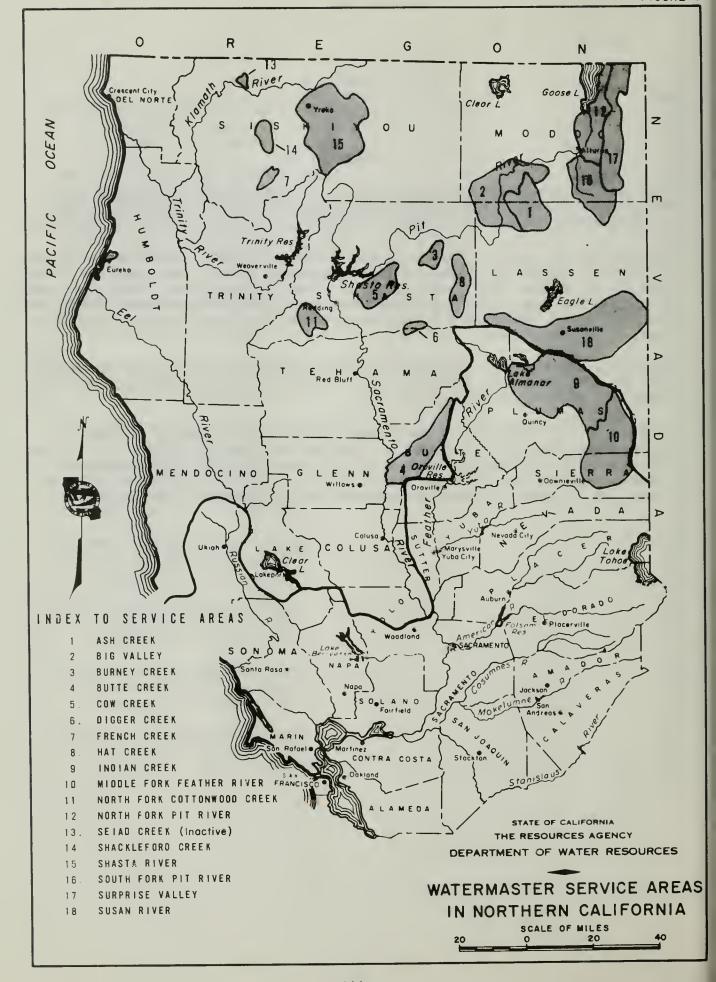
ABSTRACT

The primary purpose of watermaster service is to distribute water among users in accordance with their established water rights. This is accomplished by apportioning available supplies in streams which have had water rights determinations.

Watermaster service was provided by the Department of Water Resources to 17 areas in Northern California during the 1969 watermaster season. They are: Ash Creek, Big Valley, Burney Creek, Butte Creek, Cow Creek, Digger Creek, French Creek, Hat Creek, Indian Creek, Middle Fork Feather River, North Fork Cottonwood Creek, North Fork Pit River, Shackleford Creek, Shasta River, South Fork Pit River, Surprise Valley, and Susan River.

Excellent water supply conditions existed in essentially all of these areas during the 1969 irrigation season, as the streamflows throughout Northern California were well above the long-term average.

The bulletin is presented in two parts. Part I contains general information about water rights, water supply, and watermaster areas and duties. Part II contains specific information for each service area during the 1969 watermaster season, including available streamflow, methods, and amounts of water distribution, and all other information pertinent to 1969 watermaster activities.



PART I - GENERAL INFORMATION

Distribution of water in watermaster service areas is a continuing statutory function of the Department of Water Resources as provided in Part 4 of Division 2 of the California Water Code.

The primary purpose of watermaster service is to distribute water in accordance with established water rights. This is accomplished by apportioning available supplies in streams which have had water right determinations.

A major benefit of watermaster service to water users and the State is that court litigation and physical violence, which in past years occurred quite frequently, are essentially eliminated. Under watermaster service each water right owner is assured that his rights are being protected without his having to take legal action against other users. Another important benefit results from increased use of available supplies through reduction of wasted water.

Because both the water right owners and the State receive benefits from water-master service, the costs of performing the service are shared. The State general tax fund pays for one-half the cost of operating each service area. The water right owners in the service area pay the other one-half.

Determination of Water Rights

Water rights determinations for purposes of establishing a watermaster service area may be accomplished by "statutory" adjudication, "court" adjudication, permit or license to appropriate, or by agreement.

The California Water Code (Sections 2500-2900) contains procedures whereby water users on any stream may petition to have the State Water Resources Control Board, Division of Water Rights,

make a legal determination of water rights on that stream. If the Board finds that such a determination is in the public interest, it proceeds with a Statutory Adjudication. This adjudication ultimately results in a court decree which defines all water rights on the stream.

A similar but less extensive method of defining water rights involves a "court" adjudication procedure. When an action is brought before the Superior Court in the county in which there is a water rights dispute, the court has two methods available for its settlement. It may refer the action to the State Water Resources Control Board for a determination under authority contained in Sections 2000-2076 of the Water Code. Or, it may make an investigation of the facts and render a decision without referral to the Board.

These court adjudications determine only the water rights of parties named in the action and therefore do not necessarily define all water rights on the stream. Consequently, they sometimes precipitate serious conflicts between decreed water right owners and persons claiming rights for riparian lands which were not considered in the decree.

Almost all of the streams under state watermaster service have had their water rights defined by the courts under one of the above adjudication procedures. These adjudications (decrees) establish each owner's rights as to allowable rate of diversion, season of use, point of diversion, and place of use. They also establish priorities whereby each owner's rights are shown in relation to the rights of all other decreed owners.

Under the priority system all first priority rights must be fully satisfied

before water can be diverted to any lower priority rights (second, third, etc.). When a shortage occurs within any priority, the available water is proportioned among all owners of that priority.

Description of Watermaster Service Areas

A watermaster service area may be created either by petition from water users (Section 4050 of the Water Code) or by order of a Superior Court.

The first watermaster service areas were created in September 1929, while the most recent addition was made in November 1968. Prior to 1929, some watermaster service was provided in accordance with the Water Commission Act of 1913. There are now about 50 streams in Northern California which are under state watermaster service. These are combined into the 18 service areas shown on Figure 1. Sixteen are in the Northern District and two are in the Central District. The Seiad Creek service area is presently inactive.

The service areas are located primarily in the mountainous northeastern part of the State where the growing season varies between about 100 and 140 days. Meadow hay and alfalfa are the principal crops under irrigation, although a considerable amount of land is used exclusively for pasturing livestock. Most irrigation is accomplished by gravity systems, with water users diverting directly from the streams at one or more diversion points. However, pumped diversions and sprinkler irrigation systems are becoming popular in some areas.

Table 1 lists all watermaster service areas in Northern California, the date each was created, and the corresponding decrees and agreement under which each is operated.

Schematic drawings of the major stream systems within each service area are presented in Figures 2 through 18. These drawings show the relative location of major roads, stream gaging stations, diversion points, and water right allotments for each diversion. The diversion points shown in these figures correspond to those listed in the respective decrees which define the water rights.

Watermaster Responsibilities

To assure the proper distribution of water within his service area, each watermaster must ascertain the amount of water available and distribute it both by amount and priority in accordance with established water rights. To accomplish his purposes, the watermaster is provided authority both by the Water Code and by provisions of pertinent court decrees or voluntary agreements to physically regulate the various streams in the service area. He is further authorized to supervise the design, construction, operation and maintenance of diversion dams, headgates, and measuring devices.

Each watermaster supervises water distribution at approximately 100 to 200 diversions in one or more service areas. The frequency of visiting these diversion points substantially increases in years of short water supply.

Permanent measurement and control devices, which the State requires at each owner's main point of diversion, are constructed by the water users under supervision of the watermaster. Installation of accurate, easily set, and lockable structures is a continuing objective of watermaster service, since once they are built, conflicts among water users almost always stop. Also, the watermaster's ability to visit and set each diversion on a

TABLE 1 SUPERIOR COURT DECREES REGULATING WATER DISTRIBUTION

Watermaster	Name			Dogwood		Date Water- master Service	
Service Area	of Stream System	County	Number	Decree Date	Type*	Area Created	Remarks
Ash Creek	Ash Creek	Modoc ** and Lassen	3670	10-27-47	CR	4-03-59	Included as part of Big Valley service area 1949 through 1958.
Big Valley	Pit River	Modoc ** and Lassen	6395	2-17-59	S	11-13-34	Service provided in accordance with recorded agreement in 1934. Service area operated under recorded agreement 1935 through 1958, and under decree since 1959.
Burney Creek	Burney Creek	Shaata	5111	1-30-26	CR	9-11-29	Servicé provided in accordance with decree since 1926.
Butte Creek	Eutte Creek	Butte	18917	11-06-42	S	1-07-43	
Cow Creek	North Cow Creek Oak Run Creek Clover Creek	Shasta Shasta Shasta	5804 5701 6904	4-29-32 7-22-32 10-04-37	CR CR CR	10-17-32 10-17-32 1-21-38	Included in Cow Creek service area.
Digger Creek	Digger Creek	Shasta and Tehama **	2213 3214 3327 4570	8-12-99 5-27-13 10-16-17 2-24-27	C C C	6-11-64	
French Creek	French Creek	Siskiyou	14478	7-1-58	CR	11-19-68	
Hat Creek	Hat Creek	Shasta	5724 7858	5-14-24 10-07-35	CR CR	9-11-29	Service provided in accordance with decree since 1924.
Indian Creek	Indian Creek	Plumas	4185	5 - 19 - 50	S	2 - 19-51	
Middle Fork Feather River	Middle Fork Feather River	Plumas ** and Sierra	3095	1-22-40	S	3-29-40	
North Fork Cottonwood Creek	North Fork Cottonwood Creek	Shasta	5479	6-09-20	CR	9-11-29	Service provided intermittently in accordance with the decree since 1924.
North Fork Pit River	North Fork Pit River and all tributaries except Franklin Creek	Modoc	4074	12-14-39	S	12-18-39	All stream systems consolidated into North Fork Pit River service area 12-13-40.
	New Pine Creek Davis Creek Franklin Creek Cottonwood Creek	Modoc Modoc Modoc Modoc	2821 2782 3118 2344	6-14-32 6-30-32 9-08-33 5-03-40	CR CR CR CR	6-22-32 7-13-32 9-14-33 12-13-40	
Seiad Creek	Seiad Creek	Siskiyou	13774	4-10 - 50	S	11-06-50	Service provided in accordance with decree by order of the court in 1950. Service suspended since September 1964.
Shackleford Creek	Shackleford Creek	Siskiyou	13775	4-10-50	S	11-06-50	Service provided in accordance with decree by order of the court in 1950.
Shasta River	Shasta River	Siskiyou	7035	12-29-32	S	3-01-33	
South Fork Pit	South Fork Pit	Modoc **	3273	10-30-34	CR	12-31-34	Service includes operation of West Valley Reservoir (built subsequent to issuance of
River	River Pine Creek	and Lassen Modoc	Agreement	11-22-33		1-12-35	decree) in accordance with the demands of South Fork Irrigation District.
Surprise Valley	Cedar Creek	Modoc	1206	5-22-01 2-15-23	C	9-11-29	All adjudicated stream systems in Surprise Valley were consolidated into the Surprise
	Soldier Creek Owl Creek Emerson Creek Mill Creek Deep Creek Pine Creek Rader Creek Eagle Creek Bidwell Creek	Modoc Modoc Modoc Modoc Modoc Modoc Modoc Modoc	2343 2405 2410 2840 3024 3101 3391 3626 2304 3284 6420	2-17-23 11-28-28 4-29-29 3-25-30 12-19-31 1-25-34 12-07-36 6-04-37 4-05-26 11-05-37 1-13-60	C CR CR CR CR CR CR CR CR	9-11-29 9-11-29 4-02-03 12-30-31 12-29-34 1-13-37 6-12-37 1-10-39	Valley were consolitated into the surples Valley service area on 1-10-39. Bidwell Creek was added on March 16, 1960. Servic started on Cedar Creek in 1926 in accordance with the decree. Service was provide on Soldier and Owl Creeks in 1929 in accordance with the decrees by order of the court.
Susan River	Susan River Baxter Creek Parker Creek	Lassen Lassen Lassen	4573 8174 8175	4-18-40 12-15-55 12-15-55	CR S S	11-10-41 2-16-56 2-16-56	

^{*} Explanation of type of Decree:
C Court adjudication (court makes determination from evidence submitted - no report of referee)
CR Court adjudication (referred to State Water Resources Control Board for investigation and report)
S Statutory adjudication (State Water Resources Control Board is petitioned by water users to make a determination of all water rights on a stream system)

^{**} Decree entered by the Superior Court of this county

regular basis is greatly facilitated by good structures.

The watermaster is often called upon to make immediate field or on-the-spot interpretations of various court decrees, agreements, etc. Since most of these documents were written more than 30 years ago, many situations have developed that were not initially considered. Therefore, the watermaster must use sound, careful, and practical judgment in attempting to reach workable solutions to water disputes. To accomplish this he must possess a good understanding of California Water Law.

Water Supply

Water supply in the watermaster service areas is derived principally from unregulated runoff of small streams. Peak runoff, mostly snowmelt, occurs in the spring, with relatively small streamflow occurring in the summer and early fall. Additional supplies from storage reservoirs and ground water pumping are used in some areas to supplement natural streamflow.

In some service areas the water supply must be predicted in advance to determine the date watermastering will begin and, to some extent, the manpower needed. The Department's Bulletin No. 120 series, "Water Conditions in California", is used to assist in these predictions.

Precipitation

The streamflow available for distribution is affected by total precipitation, amount of snowpack, air temperature, and the amount of rainfall received during the irrigation season. The latter is particularly important in the Upper Pit River-Surprise Valley areas, where about 25 to 30 percent of the annual precipitation occurs in April, May and June. Spring storms, which are normally accompanied by cooler temperatures, materially affect both the supply and the demand for water.

Temperatures in the spring affect the demand for water and the manner in which snowmelt runoff occurs. A hot, dry spring depletes the water supply very early, even in years of normal snowpack. A cold, wet spring can extend the supply well into the irrigation season, but cold temperatures retard the growth of crops and are not necessarily desirable.

Data collected at representative snow courses showing the snowpack as of April 1, 1969 on all courses and the snowpack on May 1 and June 1 at selected courses is presented in Table 2. This information was obtained from the Department's Bulletin No. 120-69.

Table 3 presents information on precipitation at selected stations in the service areas. The seasonal precipitation gives an indication of the related water supply available for distribution and provides a basis for comparing the current year's supply with a long-term average supply.

Streamflow

The general water supply available for diversion within each watermaster area is determined from stream gaging stations placed at key locations in the main stream channels. Several major stations are installed and maintained by the United States Geological Survey or by the Department of Water Resources as part of a Federal-State program for collection of year-round streamflow records. In addition, several stream gaging stations are installed and operated by the watermaster during the irrigation season to provide supplemental information. Also, water stage recorders are often installed by the watermaster in selected diversion ditches to further assist him in proper distribution of the various water right allotments.

Table 4 presents runoff data at selected stream gaging stations in or near the

SNOWPACK AS OF APRIL 1 AND MAY 1, 1969 AT REPRESENTATIVE SNOW COURSES TABLE 2

Shake for the following land of the follow						WATER	CONTENT	WATER CONTENT OF SNOW (IN INCHES)	HES)	
Middle Bounder No. 1 6,700 34.0 56.3 163 Little Shasta 6,200 20.5 45.6 149 35.0 115 Little Shasta 6,200 20.0 26.6 133 35.0 115 Blue Lake Ranch 7,300 9.9 16.7 169 48 Eagle Peak 7,200 15.6 20.1 129 48 Cafar Pass 7,100 16.7 20.2 153 9.6 48 Adia Pass 6,500 35.7 58.4 163 51.8 89 Adia Mountain 6,350 7.7 18.4 240 32.4 48 Burney Springs 4,700 2.4 7.8 32.4 32.4 32.4 Burney Springs 4,700 2.4 7.8 32.4 32.4 32.4 Silver Lake Meadows 6,450 27.6 57.4 209 47.0 82 Fredonyer Pass No. 1 5,750 8.8 22.9 26.0	Watermaster Service Area	Snow Course*	Elevation (in feet)	April 1 Average		in Percent of April 1 Average	May 1 1969**	In Percent of April 1 Average	June 1 1969**	In Percent of April 1 Average
Middle Boulder No. 1 6,600 30.5 45.6 149 35.0 115 Little Shasta 6,200 20.0 26.6 133 16.7 16.9 Blue Lake Ranch 7,200 15.6 20.1 129 48 Cedar Pass 7,100 16.7 23.6 141 48 Adin Mountain 6,350 13.2 20.2 15.8 48 New Manzonite Lake 6,350 7.7 18.4 240 3.2 17 Burney Springs 4,700 2.4 7.8 324 3.2 17 Humbug Summit 4,850 11.6 30.1 260 47.0 8.8 22.9 260 Fredonyer Pass No. 1 5,750 8.8 22.9 260 47.0 82 7.0 Mount Oeyer No. 1 7,100 17.4 32.7 48.9 22.9 26.9 6.9 9.0 9.0 9.0 9.0 9.0 9.0 9.0 9.0 9.0 9.0	Shackleford Creek	Parks Creek	6,700	34.0	56.3	163				
Little Shasta 6,200 20.0 26.6 133 Blue Lake Ranch 7,200 15.6 20.1 16.9 Eagle Peak 7,200 15.6 20.1 129 Cedar Pass 7,100 16.7 23.6 141 Adin Mountain 6,350 13.2 20.2 153 9.6 48 New Manzanita Lake 5,900 7.7 18.4 240 3.2 17 Burney Springs 4,700 2.4 7.8 324 3.2 17 Humbug Summit 4,850 11.6 30.1 260 47.0 82 Fredonyer Pass No. 1 5,750 8.8 22.9 260 47.0 82 Fredonyer Pass No. 1 5,750 8.8 22.9 260 47.0 82 Rowland Creek 6,700 17.4 32.7 188 26.9 7.0 Rowland Creek 6,700 30.4 61.3 20.2 47.6 78	Shasta River	Middle Boulder No. 1	6,600	30.5		149	35.0	115		
Blue Lake Ranch 7,300 9.9 16.7 169 Eagle Peak 7,200 15.6 20.1 129 Cedar Pass 7,100 16.7 23.6 141 Adin Mountain 6,350 13.2 20.2 153 9.6 48 Thousand Lakes 6,500 35.7 58.4 163 51.8 89 New Manzanita Lake 5,900 7.7 18.4 240 3.2 17 Burney Springs 4,700 2.4 7.8 324 3.2 17 Humbug Summit 4,850 11.6 30.1 260 47.0 88 Fredonyer Pass No. 1 5,750 8.8 22.9 260 47.0 82 Mount Deyer No. 1 7,100 24.3 43.7 180 82 7.0 Rowland Creek 6,700 17.4 32.7 188 26.8 0.0 Yubs Pass 6,700 30.4 61.3 20.2 77.6 77.6 <td></td> <td>Little Shasta</td> <td>6,200</td> <td>20.0</td> <td>26.6</td> <td>133</td> <td></td> <td></td> <td></td> <td></td>		Little Shasta	6,200	20.0	26.6	133				
Eagle Peak 7,200 15.6 20.1 129 Cedar Pass 7,100 16.7 23.6 141 Adin Mountain 6,350 13.2 20.2 153 9.6 48 Thousand Lakes 6,500 35.7 58.4 163 51.8 89 New Manzanita Lake 5,900 7.7 18.4 240 3.2 17 Burney Springs 4,700 2.4 7.8 324 3.2 17 Humbug Summit 4,850 11.6 30.1 260 47.0 82 Fredonyer Lake Meadows 6,450 27.6 57.4 209 47.0 82 Fredonyer Pass No. 1 5,750 8.8 22.9 260 700 70 Mount Obeyer No. 1 7,100 24.3 43.7 180 36.0 82 7.0 Rowland Creek 6,700 17.4 32.7 188 26.8 82 0.0 Rowland Creek 6,700 30.4	Ash Creek	Blue Lake Ranch	7,300		16.7	169				
Cedar Pass 7,100 16.7 23.6 141 48 Adin Mountain 6,350 13.2 20.2 153 9.6 48 Thousand Lakes 6,500 35.7 58.4 163 51.8 89 New Manzanita Lake 5,900 7.7 18.4 240 3.2 17 Burney Springs 4,700 2.4 7.8 324 3.2 17 Humbug Summit 4,850 11.6 30.1 260 47.0 82 Silver Lake Meadows 6,450 27.6 57.4 209 47.0 82 Fredonyer Pass No. 1 5,750 8.8 22.9 260 47.0 82 Mount Deyer No. 1 7,100 24.3 43.7 180 36.0 82 7.0 Rowland Creek 6,700 17.4 32.7 188 26.8 0.0 Yuba Pass 6,700 30.4 61.3 20.2 47.6 78	Big Valley	Eagle Peak	7,200	15.6	20.1	129				
Ley Thousand Lakes 6,350 13.2 20.2 153 9.6 48 Ity Thousand Lakes 6,500 35.7 58.4 163 51.8 89 New Manzanita Lake 5,900 7.7 18.4 240 3.2 17 Burney Springs 4,700 2.4 7.8 324 3.2 17 Humbug Summit 4,850 11.6 30.1 260 47.0 82 Silver Lake Meadows 6,450 27.6 57.4 209 47.0 82 Fredonyer Pass No. 1 5,750 8.8 22.9 260 102 Independence Lake 8,450 40.3 66.5 165 68.0 102 Reather Mount Deyer No. 1 7,100 24.3 43.7 190 36.0 82 7.0 1 Rowland Creek 6,700 17.4 32.7 188 26.8 82 0.0 Yuba Pass 6,700 30.4 61.3 <td< td=""><td>North Fork Pit River</td><td>Cedar Pass</td><td>7,100</td><td>16.7</td><td>23.6</td><td>141</td><td></td><td></td><td></td><td></td></td<>	North Fork Pit River	Cedar Pass	7,100	16.7	23.6	141				
Thousand Lakes 6,500 35.7 58.4 163 51.8 89 New Manzanita Lake 5,900 7.7 18.4 240 3.2 17 Burney Springs 4,700 2.4 7.8 324 17 Humbug Summit 4,850 11.6 30.1 260 Silver Lake Meadows 6,450 27.6 57.4 209 47.0 82 Fredonyer Pass No. 1 5,750 8.8 22.9 260 Independence Lake 8,450 40.3 66.5 165 68.0 102 Rowland Creek 6,700 17.4 32.7 188 26.8 82 7.0 17 Yuba Pass 6,700 30.4 61.3 202 47.6 78	South Fork Pit River	Adin Mountain	6,350	13.2	20.2	153		48		
Thousand Lakes 6,500 35.7 58.4 163 51.8 89 New Manzanita Lake 5,900 7.7 18.4 240 3.2 17 Burney Springs 4,700 2.4 7.8 32.4 17 Humbug Summit 4,850 11.6 30.1 260 Silver Lake Meadows 6,450 27.6 57.4 209 47.0 82 Fredonyer Pass No. 1 5,750 8.8 22.9 260 47.0 82 Independence Lake 8,450 40.3 56.5 165 68.0 102 Reather Mount Obeyer No. 1 7,100 24.3 43.7 180 26.8 82 7.0 1 Rowland Creek 6,700 17.4 32.7 188 26.8 82 0.0 0.0 Yuba Pass 6,700 30.4 61.3 202 47.6 78 78	Surprise Valley									
New Manzanita Lake 5,900 7.7 18.4 240 3.2 17 Burney Springs 4,700 2.4 7.8 324 17 Humbug Summit 4,850 11.6 30.1 260 Silver Lake Meadows 6,450 27.6 57.4 209 47.0 82 Fredonyer Pass No. 1 5,750 8.8 22.9 260 102 7.0 10 Feather Mount Deyer No. 1 7,100 24.3 43.7 180 36.0 82 7.0 1 Yuba Pass 6,700 30.4 61.3 202 47.6 78 0.0	Burney Creek	Thousand Lakes	6,500	35.7	58.4	163		88		
Burney Springs 4,700 2.4 7.8 324 Humbug Summit 4,850 11.6 30.1 260 Silver Lake Meadows 6,450 27.6 57.4 209 47.0 82 Fredonyer Pass No. 1 5,750 8.8 22.9 260 47.0 82 Independence Lake 8,450 40.3 66.5 165 68.0 102 Rowland Creek 6,700 17.4 32.7 188 26.8 7.0 1 Yuba Pass 6,700 30.4 61.3 202 47.6 78 7.0	Cow Creek	New Manzanita Lake	5,900	7.7	18.4	240		17		
Humbug Summit 4,850 11.6 30.1 260 Silver Lake Meadows 6,450 27.6 57.4 209 47.0 82 Fredonyer Pass No. 1 5,750 8.8 22.9 260 Independence Lake 8,450 40.3 66.5 165 68.0 102 Mount Deyer No. 1 7,100 24.3 43.7 180 36.0 82 7.0 1 Rowland Creek 6,700 17.4 32.7 188 26.8 82 0.0 Yuba Pass 6,700 30.4 61.3 202 47.6 78	Oigger Creek Hat Creek	Burney Springs	4,700	2.4	7.8	324				
Silver Lake Meadows 6,450 27.6 57.4 209 47.0 82 Fredonyer Pass No. 1 5,750 8.8 22.9 260 Independence Lake 8,450 40.3 66.5 165 68.0 102 Mount Deyer No. 1 7,100 24.3 43.7 180 36.0 82 7.0 1 Rowland Creek 6,700 17.4 32.7 188 26.8 82 0.0 Yuba Pass 6,700 30.4 61.3 202 47.6 78	Butte Creek	Humbug Summit	4,850	11.6	30.1	260				
Fredonyer Pass No. 1 5,750 8.8 22.9 26.0 Independence Lake 8,450 40.3 66.5 165 68.0 102 Mount Deyer No. 1 7,100 24.3 43.7 180 36.0 82 7.0 1 Rowland Creek 6,700 17.4 32.7 188 26.8 82 0.0 Yuba Pass 6,700 30.4 61.3 202 47.6 78	Susan River	Silver Lake Meadows	6,450	27.6	57.4	209	47.0	82		
Independence Lake 8,450 40.3 66.5 165 68.0 102 Mount Deyer No. 1 7,100 24.3 43.7 180 36.0 82 7.0 1 Rowland Creek 6,700 17.4 32.7 188 26.8 82 0.0 Yuba Pass 6,700 30.4 61.3 202 47.6 78		Fredonyer Pass No. 1	5,750	89 .	22.9	260				
Mount Deyer No. 1 7,100 24.3 43.7 180 36.0 82 7.0 1 Rowland Creek 6,700 17.4 32.7 188 26.8 82 0.0 Yuba Pass 6,700 30.4 61.3 202 47.6 78	Indian Creek	Independence Lake	8,450	40.3	66.5	165	68.0	102		
Rowland Creek 6,700 17.4 32.7 188 26.8 82 Yuba Pass 6,700 30.4 61.3 202 47.6 78	Middle Fork Feather	Mount Deyer No. 1	7,100	24.3	43.7	180	36.0	82	7.0	16
6,700 30.4 61.3 202 47.6	River	Rowland Creek	6,700	17.4	32.7	188		82	0.0	
		Yuba Pass	6,700	30.4	61.3	202	47.6	7.8		

Snow courses are listed according to elevation within each major grouping of watermaster service areas. They do not necessarily correspond to a specific service area.

^{**} Data collected for selected courses.

TABLE 3

PRECIPITATION AT SELECTED STATIONS - 1968-69 SEASON

	Percent Of Mean	1 05	103	122	143	132	131	*	125	110	1 03	104	138	135	153	141
	Total 22 83	21.78	56.67	20.76	37.37	38.92	23.63	17.76	18.07	14.11	17.86	13.39	19.98	57.78	38.89	18.22
	Sept.	0.40	0.46	0.15	0.00	0.28	0.04	*	0.09	T 0.43	0.05	0.20	0.35	0.09	0.01	0.01
	Aug.	0.34	0.00	0.00	0.00	0.00	0.00	*	0.00	0.00	T 0.26	0.00	0.00	0.00	0.00	0.00
	July	0.35	0.82	0.05	0.05	0.00	0.15	* *	0.01	0.09	0.16	0.22	0.13	0.00	0.25	0.03
:	June 1 31	0.81	1.06	2.88	0.75	0.44	2.07	*	3.31	3.35	2.44	1.05	1.69	2.70	2.78	1.67
	May 0 52	1.11	0.87	0.44	0.00	0.03	0.15	*	1.51	0.29	0.40	1.04	0.34	0.50	1.25	1.01
) :	Apr.	0.98	1.40	1.09	2.62	2.95	1.15	1.46	0.89	1.11	1.98	0.99	0.54	2.94	1.76	0.63
	Mar.	2.21	1.60	0.45	3.29	2.01	2.02	*	0.72	0.53	1.61	0.60	0.36	1.44	0.64	0.19
	Feb.	3.14	6.56	1.25	8.59	12.82	3.49	* *	1.33	0.93	0.81	1.50	2.55	9.16	5.89	1.80
	Jan.	4.06	15.93	3.19	5.03	7.69	6.72	* *	5.61	4.24	4.01	1.84	2.53	21.98	16.68	1.94
	0ec.	4.02	15.97	3.30	5.12	13.72	5.79	2.05	1.88	0.98	2.00	1.23	3.85	11.68	5.31	2.12
	Nov.	2.77	8.47	2.53	3.48	3.76	2.26	* *	3.08	2.17	3.71	2.43	1.51	5.03	3.26	1.44
	0ct.	1.59	3.65	0.91	2.46	3.11	1.08	1.30	0.89	1.07	1.31	1.17	0.26	2.26	1.83	0.26
	County	Siskiyau	Siskiyou	Siskiyou	Butte	Shasta	Shasta	Lassen	Lake	Modoc	Modac	Modac	Lassen	Plumas	Sierra	Plumas
	Station	Fort Jones Ranger Station	Happy Camp Ranser Station	Yreka	Chica Experiment Station	Redding Fire Station No. 2	Hat Creek Power House No. 1	Bieber, Babcock Ranch	Lakeview, Oregon	Alturas Ranger Station	Jess Valley	Cedarville	Susanville Airport	Greenville Ranger Station	Sierraville Ranger Station	Vintan

* Data unavailable.

Note; Figures above line are for current season; below line are long-term averages.

TABLE 4
RUNDFF AT SELECTED STATIONS
1968-69 SEASON
(in acre-feet)

service areas. Runoff data at stream gaging stations used by the water-masters are contained in tables following the description of each area. These data are used in conjunction with schedules showing total water rights to determine the adequacy or shortage of the water supply.

Essentially all watermaster service areas experienced above-average water supplies during the 1969 irrigation season. In some areas total streamflow runoff between April 1 and September 30 was at or near record levels.

PART II - 1969 WATERMASTER SERVICE

This part of the report gives a general geographical description of each water-master service area and the major sources of water supply therein. The

usual methods of distribution of the water supply of the 1969 season are discussed. Special occurrences in some areas are also mentioned.

Ash Creek Watermaster Service Area

The Ash Creek service area is located in Modoc and Lassen Counties near the town of Adin. There are 32 water right owners in this area with total allotments of 123.65 cubic feet per second.

The major sources of water supply for the service area are Ash Creek and three tributaries, Willow Creek, Rush Creek, and Butte Creek. Ash Creek rises in the eastern part of the service area and flows westerly through the town of Adin into Ash Creek Swamp and then into the Pit River. Rush Creek heads in the northeastern part of the service area and joins Ash Creek above the town of Adin. Willow Creek and Butte Creek originate in the southeastern part of the service area and join Ash Creek near the head of Ash Creek Swamp. Each of these streams is independently regulated.

Approximately 85 percent of the water rights in the service area are in Big Valley, west of the town of Adin. The remaining water rights are along the upstream tributaries and in Ash Valley. The portion of Big Valley served is approximately 10 miles long by 6 miles wide, extending from the town of Adin to the confluence of Ash Creek and the Pit River. The valley floor is at an elevation of approximately 4,200 feet.

A schematic drawing of each major stream system within the Ash Creek service area is presented as Figure 2, page 13.

Water Supply

The water supply for Ash and Rush Creeks is derived primarily from snowmelt, since most of the watershed is between 5,000 and 6,000 feet in elevation. Willow Creek and Butte Creek receive a substantial portion of their water from springs. These creeks normally have sufficient water to satisfy demands

until about June 1, after which the supply decreases rapidly. By the latter part of June, Ash Creek normally has receded to about 20 cubic feet per second, Rush Creek to about two cubic feet per second, Willow Creek to about five cubic feet per second, and Butte Creek to less than one cubic foot per second. The flow of these creeks then remains nearly constant for the remainder of the season.

The daily mean discharge of Ash Creek at Adin is presented in Table 5, page 12. This stream gaging station is located below a substantial number of the points of diversion; consequently, the table does not include all of the available supply of this creek.

No stream gaging stations were installed on Butte, Rush, or Willow Creeks during the 1969 season.

Method of Distribution

Irrigation diversions from Ash Creek and its tributaries are accomplished by small dams placed in the stream channels. Most of the users have several diversion ditches at these dams. These ditches convey the water to the fields where it is spread by means of small laterals. Some of the users employ a system of checks and borders, but most of the land is irrigated by wild flooding. Return flow is captured by downstream ranches for reuse. In one case a rancher may recirculate his drain water before returning it to the creek for further use. In a few areas, pumps are used to divert the water into ditches or through sprinkler systems.

The Ash Creek decree (see Table 1) establishes the number of priority classes on the various stream systems within the Ash Creek service area as follows: Ash Creek - five; Willow Creek - four; Rush Creek - one; and Butte Creek - two.

1969 Distribution

Watermaster service began May 1 in the Ash Creek service area and continued until September 30. Lynn W. Peterson, Water Resources Technician II, was watermaster during this period.

Willow Creek. The available water supply in Willow Creek was sufficient to satisfy all allotments (four priorities) until late May. The flow then dropped rapidly, causing regulation of second priority allotments to begin during the first week in June. Throughout the remainder of June and continuing until late August the flow receded gradually. At this time, and for the remainder of the season, about 60 percent of the second priority allotments were served.

Butte Creek. The available water supply in Butte Creek was sufficient to satisfy all allotments (two priorities) until late spring. During the remainder of the season the flow gradually decreased; however, no distribution problems were encountered.

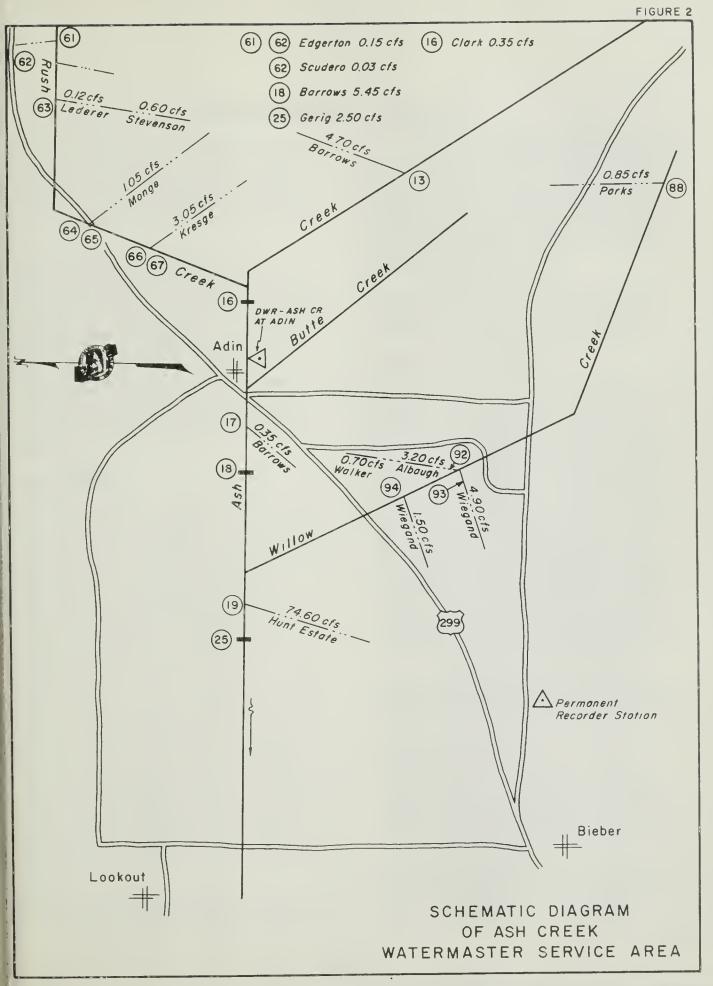
Ash Creek. The available water supply in Ash Creek was sufficient to meet all demands (five priorities) until the latter part of June. For most of the irrigation season, water was available for first priority allotments only.

Rush Creek. The available water supply in Rush Creek was sufficient to satisfy all allotments (one priority) until the end of July. By late September the flow had gradually decreased to about 75 percent of all allotments.

ASH CREEK WATERMASTER SERVICE AREA 1969 Daily Mean Discharge in Cubic Feet Per Second

TABLE 5 ASH CREEK AT AOIN

0 ay : 1 2 3 4 5 5	88 86 86 83 84	1190 947 714 588 563	May : 217 198 197 187 177	34 30 29 28 50	July : 24 22 21 19	August : 24 36 44 27 21	9.1 7.0 7.0 7.0 5.6	Day 1 2 3 4 5
6 7 8 9 10	88 82 77 78 72	551 507 419 368 350	179 192 185 184 179	30 25 27 37 45	21 22 22 22 22 26	22 21 20 20 20	7.0 8.6 9.1 10	6 7 8 9 10
11 12 13 14	69 71 71 76 93	348 360 356 348 310	179 171 165 154 144	46 31 28 41 43	28 25 23 22 22	20 20 20 19 19	13 13 16 16	11 12 13 14 15
16 17 18 19 20	133 264 348 274 224	283 276 368 330 330	128 111 103 98 92	34 25 28 42 55	21 21 23 24 26	19 22 23 23 16	17 18 19 20 21	16 17 18 19 20
21 22 23 24 25	283 460 492 503 583	328 328 348 373 356	84 77 66 61 58	45 35 7 29 28 27	27 25 25 25 21	17 19 17 16 17	20 19 19 20 28	21 22 23 24 25
26 27 28 29 30 31	726 846 986 1080 1180 1280	291 236 219 227 219	51 49 44 36 36 36	28 29 33 29 27	14 20 23 23 27 24	16 18 15 11 11	23 22 22 22 22	26 27 28 29 30 31
Mean Runoff In Acre-Feet	21550	24660	7610	20 20	1400	1 240	929	Mean Runoff In Acre-Feet





Big Valley Watermaster Service Area

The Big Valley service area is located in Modoc and Lassen Counties in the vicinity of the towns of Lookout and Bieber. There are 53 water right owners in the area with total allotments of 231.03 cubic feet per second.

The Pit River is the major source of water supply for the service area. The river enters the valley north of the town of Lookout and flows southerly through the western part of the valley and out its southern end. The major place of use is about 13 miles of valley floor along the Pit River at an approximate elevation of 4,200 feet.

A schematic drawing of the Big Valley stream system is presented as Figure 3, page 18.

Water Supply

The available water supply in the Pit River as it flows through Big Valley is ordinarily adequate to satisfy all demands until about June 1. The irrigation practices in Hot Springs Valley, located about 20 miles upstream from Big Valley, have a significant effect on the available water supply in Big Valley throughout the remainder of the irrigation season. Water users in Hot Springs Valley divert most of the flow in Pit River for two-or three-week periods. Natural flow available for use in Big Valley during these periods is often less than 20 cubic feet per second. Periodic releases from channel storage reservoirs in the lower end of the valley sometimes increase the flow to as much as 200 to 300 cubic feet per second for relatively short periods. Consequently, equitable water distribution in Big Valley is very difficult to attain.

Roberts Reservoir, located on a minor tributary of the Pit River at the upper

end of Big Valley above Lookout, serves as a supplemental source of water to those users in the area who are members of the Big Valley Mutual Water Company. Water from this reservoir is released into the Pit River and distributed to members of the water company along with the natural flow to which they are entitled.

Records of two stream gaging stations in the Big Valley service area are presented in Tables 6 and 7, page 17.

Method of Distribution

Most water users in the Big Valley service area irrigate on a rotation schedule by either wild flooding or by checks and borders. Large flashboard dams placed in the channel make it possible to use the large heads of water characteristic of the supply in the area. In addition, some pumps are used for diversion, both in ditches and directly into sprinkler systems. The ranches which irrigate by wild flooding must use large heads of water in order to cover unleveled or high ground. Much of the runoff is recaptured for use by downstream lands, resulting in a relatively high irrigation efficiency for the valley.

The Big Valley decree (see Table 1) provides for the distribution of water from Pit River in four priority classes.

1969 Distribution

Watermaster service began in the Big Valley service area on May 1 and continued through September 30. Virgil D. Buechler, Water Resources Technician II, was watermaster during this period.

The season began with West Valley and Big Sage Reservoirs at full capacity and a good snowpack in the Warner Mountains. In mid-June a warm rainstorm hit the area. This storm depleted most of the snowpack and raised the flows in the Pit River to 900 cubic feet per second.

An irrigation rotation, which had begun on May 20, was just being completed when the storm occurred in the Warner Mountains, bringing rain up to the 6,000-foot elevation. All the flashboard dams in Big Valley had to be pulled to allow the large flows on the Pit River to pass through the valley without damaging the irrigation systems. Even so, some levees and culverts in the lower part of the valley were damaged.

Two irrigations were completed prior to the start of the haying season. The lower users that do not raise hay were provided a third irrigation from excess water released by the upper users while they were dried up for the haying.

By July 21 the haying process was completed, so the river dams were sealed and storage began increasing. Since the available water was in extremely short supply, the first rotation after haying was based on only 10 acre-feet per second-foot of water rights. Most of this water was used to fill the sloughs on the various ranches, although some pasture land was irrigated.

This rotation took 29 days. The Roberts Reservoir shareholders combined their reservoir water and their river allotment to obtain a complete irrigation. The McArthur and Britten ranches in the lower part of the valley also received a full irrigation by combining their allotment with released water from their newly completed Iverson Reservoir.

Three additional irrigations were completed by September 30, the end of the watermaster season. These irrigations were based on a 12.5 acre-feet per second-foot ratio, a 15 acre-feet per second-foot ratio, and a full irrigation.

From July 27 to September 5, Roberts Reservoir water was released for use by shareholders as follows:

Name	Acre-feet
Eicholz Ranch Cyril Mamath D. Babcock & C. Hawkins Oral (Sam) Gerig Norris Gerig Hunt Estate L. W. Kramer M. Kennedy	100 87 265 167 135 88 101
Total	993

BIG VALLEY WATERMASTER SERVICE AREA

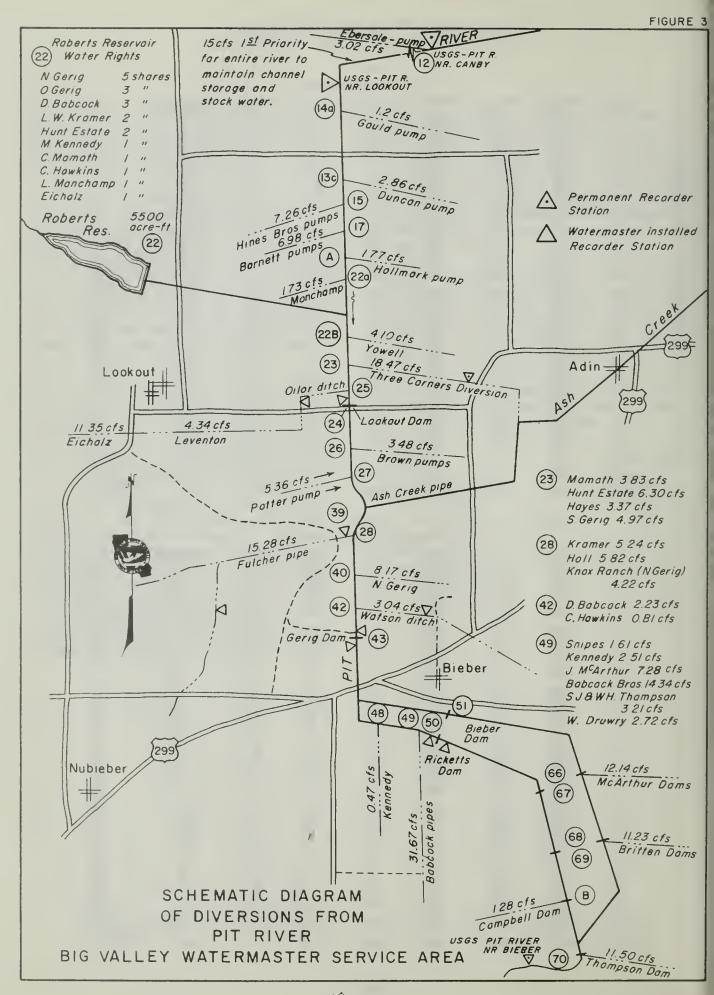
1969 Caily Mean Cischarge in Cubic Feet Per Second

TABLE 6
PIT RIVER NEAR CANBY

Day : 1 2 3 4 5	307 295 273 267 273	: April : 2080 2050 1900 1680 1430	May 899 868 851 845 834	328 301 212 250 212	174 135 107 93 89	30 30 26 21 18	32 31 38 42 87	1 2 3 4 5
6 7 8 9	281 272 253 244 223	1230 1160 1070 947 859	804 745 697 539 557	176 176 162 194 183	86 81 80 80 75	18 19 28 31 36	158 152 118 127 93	6 7 8 9 10
11 12 13 14 15	199 211 204 189 188	824 774 823 849 832	694 762 956 1070 1000	328 746 753 572 488	72 86 87 69 54	76 180 109 83 71	69 70 75 120 134	11 12 13 14 15
16 17 18 19 20	198 257 464 753 715	796 731 749 811 862	986 975 935 915 859	425 400 353 362 365	45 37 42 70 70	81 73 66 64 62	122 107 99 98 96	16 17 18 19 20
21 22 23 24 25	623 572 880 1200 1150	874 904 949 1020 1040	759 801 685 625 605	384 388 398 319 289	67 57 43 29 11	58 57 57 57 63	95 113 125 126 120	21 22 23 24 25
26 27 28 29 30 31	1180 1380 1590 1710 1770 1920	1030 1030 1010 980 957	575 559 531 498 238 257	267 252 233 187 177	4.0 2.8 7.3 11 13 22	68 67 62 59 58 <u>57</u> -5	134 132 116 106 96	26 27 28 29 30 31
Mean Runoff In Acre-Feet	39750	63970	45470	19600	3770	3530	6010	Runoff In Acre-Feet

TABLE 7
PIT RIVER NEAR BIEBER

0 a y : 1 2	March 540 570	4900 5040	: <u>May</u> : 1520 1460	June : 264 225	284 185	August : 2.7 2.7	<u>September</u> 0.4 0.4	: <u>Oay</u> 1 2 3
3 4 5	600 570 545	4850 4230 3610	1360 1300 1300	58 26 27	168 152 134	2.5 2.2 2.2	0.4 0.6 0.6	4 5
6 7 8 9	525 570 540 525	3260 2970 2720 2460	1230 1130 1040 994	34 34 17 24	111 108 100 94	2.0 1.8 1.6 1.3	0.5 0.7 1.5 1.1	6 7 8 9
1Ŏ	510	2220	900	44	90	1.2	0.9	10
11 12 13 14 15	490 475 470 490 486	2000 1880 1820 1800 1810	851 879 949 1000 1120	32 36 146 406 490	86 84 86 89 82	1.0 0.9 0.8 0.6 0.6	1.1 5.2 5.5 4.5 3.8	11 12 13 14 15
16 17 18 19 20	550 788 1380 1970 2270	1740 1620 1620 1640 1640	1150 1110 1080 1030 994	530 635 550 478 462	68 50 26 16 17	0.7 0.9 1.1 0.9 0.8	4.5 5.5 4.8 4.2 4.8	16 17 18 19 20
21 22 23 24 25	2210 2200 2480 2930 3250	1640 1620 1620 1790 2010	970 830 767 736 724	510 462 414 378 323	24 29 26 20 12	0.6 0.6 0.7 0.8 0.8	5.5 138 166 124 122	21 22 23 24 25
26 27 28 29 30 31	3540 3700 3880 4150 4420 4590	2080 1930 1780 1630 1550	706 646 610 585 555 418	338 270 171 188 267	8.4 7.2 5.8 4.2 3.8 3.5	0.7 0.7 0.7 0.6 0.5	132 98 65 59 42	26 27 28 29 30 31
Mean	1684	2383	966	261	69.8	1.2	33.4	Mean Runoff In
Runoff In Acre-Feet	103600	141800	59390	15550	4310	71	1990	Acre-Feet



Burney Creek Watermaster Service Area

The Burney Creek service area is located in Shasta County near the town of Burney. There are ll water right owners in the area with total allotments of 33.09 cubic feet per second. The source of water supply for this service area is Burney Creek, which enters the southern part of the service area and flows through Burney in a northerly direction to the Pit River. The portion of the valley served by this stream is approximately 11 miles long and two miles wide, and extends both north and south of Burney. The service area is at approximately 3,200 feet elevation.

A schematic drawing of the Burney Creek stream system is presented as Figure 4, page 21.

Water Supply

The water supply for Burney Creek comes from springs and snowmelt. Most of the watershed lies between the elevations of 4,000 and 7,500 feet on the northeast slopes of Burney Mountain. The creek normally has sufficient water to supply all demands until about the middle of June. The supply then gradually decreases until the end of July. For the remainder of the irrigation season runoff from perennial springs keeps the flow nearly constant at approximately 40 percent of allotments.

The daily mean discharge of Burney Creek near Burney is presented in Table 8. The stream gaging station on Burney Creek is located below four points of diversion; consequently, the records do not show all of the available water supply of the creek.

Method of Distribution

The Burney Creek decree (see Table 1) sets forth a rotation schedule of

distribution. The water users, however, have found it more beneficial to irrigate on a continuous-flow basis (one priority class plus surplus allotments), which is now normal practice. The water allotted to the Greer-Cornaz Ditch is distributed in accordance with supplemental court decrees.

Water is diverted from Burney Creek, in most cases by means of low diversion dams, into ditches which convey it to the place of use. Lateral ditches are then used to irrigate the land. Scott Lumber Company uses a pump and pipeline to divert its allotment for industrial use.

1969 Distribution

Watermaster service began May 1 in the Burney Creek service area and continued until September 30. Virgil D. Buechler, Water Resources Technician II, was watermaster during this period.

All allotments were distributed on a continuous-flow basis. This practice, rather than that of rotation as called for in the decree, has been used for many years by agreement of the water right owners.

The Pierpont Ranch, lowest decreed user on Burney Creek, did not irrigate during the 1969 season. Therefore, except for stockwater allotments delivered to the ranch, its irrigation water rights were apportioned among the other users on the creek.

The available water supply for the 1969 irrigation season was above normal due to the large snowpack which had accumulated during the winter and spring months. Surplus flow was available to all users until early July. All diversions were then regulated to 100 percent of first priority allotments. The supply gradually decreased

to about 70 percent of first priority allotments during mid-August.

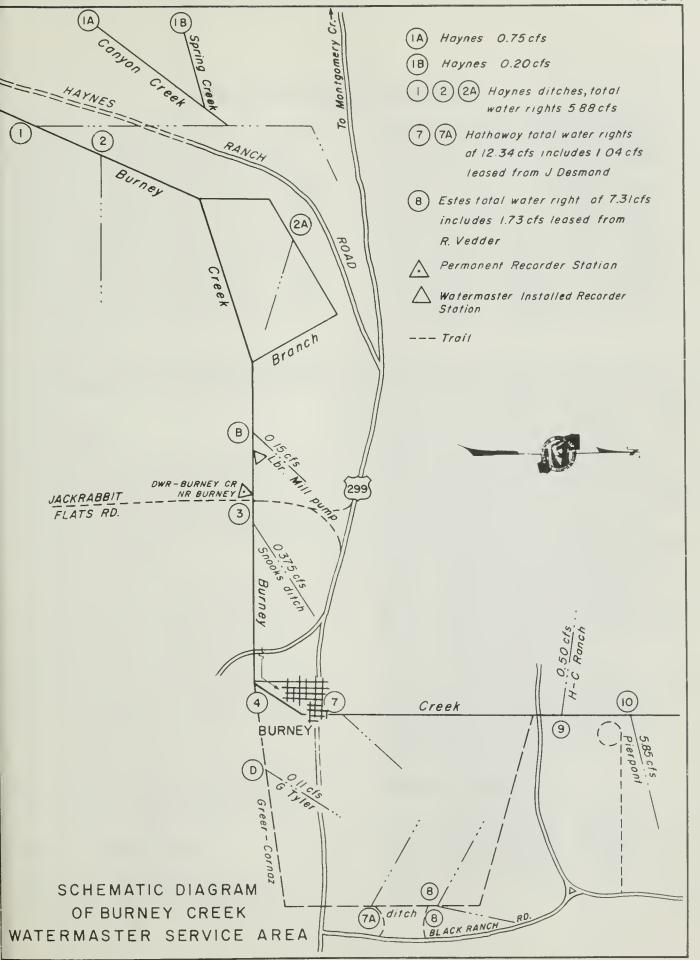
Inflow from the many springs tributary to Burney Creek served to maintain

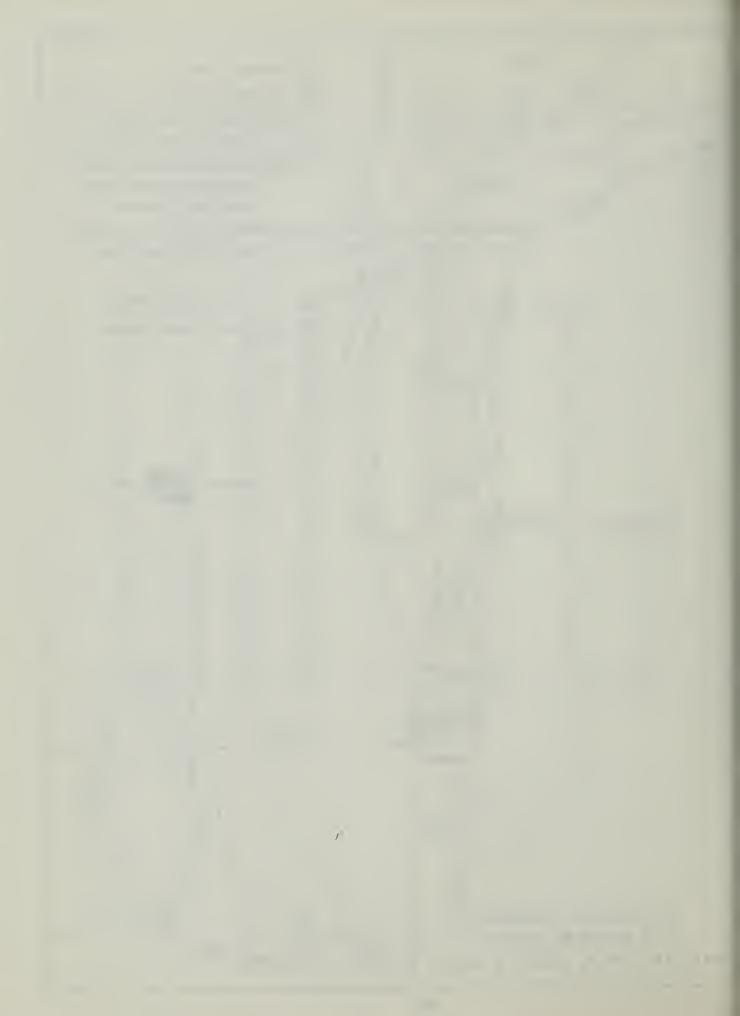
this level for the remainder of the season. The previous very wet winter contributed heavily to the output of these springs.

BURNEY CREEK WATERMASTER SERVICE AREA 1969 Daily Mean Discharge in Cubic Feet Per Second

TABLE 8
BURNEY CREEK NEAR SURNEY

_Day :	March	: April :	May:	June :	July :	August :	September	: <u>Oay</u>
1 2 3 4	99 94 91 86	336 306 250 218	316 296 288 256	118 110 108 105	40 37 36 35	23 24 23 23	16 16 16	1 2 3 4
5	81	338	260	102	34	21	16	5
6 7 8 9 10	81 79 100 92 76	288 230 210 210 204	285 318 328 346 363	97 92 94 107 108	33 33 34 34 33	21 20 20 20	16 16 16 16	6 7 8 9 10
11	62	214	366		31	19	16	
12 13 14 15	58 60 64 99	214 242 250 228 210	371 363 336 290	104 102 96 85 78	31 30 28 28	19 18 17 17 17	16 16 16 16 16	11 12 13 14 15
16 17 18 19 20	75 70 86 96 97	214 238 360 313 316	26 4 25 8 25 8 24 2 21 4	72 68 66 63 62	28 28 28 27 27	16 16 16 17 17	16 16 17 17 18	16 17 18 19 20
21 22 23 24 25	99 99 100 102 102	340 373 449 336 288	200 198 196 198 192	60 59 57 51 47	27 26 25 24 23	17 17 17 16 17	18 18 18 18	21 22 23 24 25
26 27 28 29 30 31	110 118 156 166 172 256	262 260 268 303 303	190 181 159 145 136 132	45 43 43 41 4D	23 22 23 23 23 23	17 17 17 17 17	17 17 16 16	26 27 28 29 30 31
Mean	101	279	256	77.4	28.9	18.4	16.5	Mean Runoff In
Runoff in Acre-Feet	6200	16580	15760	4610	1780	1130	984	Runoff In Acre-Feet





Butte Creek Watermaster Service Area

The Butte Creek service area is located in Butte County southeast of the City of Chico. There are 34 water right owners in the area with total allotments of 329.71 cubic feet per second. Butte Creek is the major source of water supply. The watermaster service area extends for about 11 miles along Butte Creek, commencing approximately four miles east of Chico and extending downstream to the crossing of Western Canal. It contains about 20,000 acres of valley floor lands at an average elevation of 150 feet.

A schematic drawing of the Butte Creek stream system is presented as Figure 5, page 27.

Water Supply

Butte Creek, above the watermaster service area, drains approximately 150 square miles of the western slope of the Sierra Nevada Mountains in the northeasterly portion of Butte County. The maximum elevation in the watershed is about 7,000 feet.

Snowmelt normally produces sustained high flows in the creek until about the end of June, after which perennial springs continue to produce flows of more than 40 cubic feet per second. Additional water is imported for distribution from the West Branch Feather River by means of the Hendricks (Toad Town) Canal through De Sabla Reservoir and Powerhouse into Butte Creek.

Records of the daily mean discharge at stream gaging stations in the Butte Creek service area are presented in Tables 9, 10, and 11, pages 24 and 25.

Method of Distribution

Water is diverted from Butte Creek by pumping and by gravity diversions.

Parrott Investment Company, M & T Incorporated, Dayton Mutual Water Company, and Durham Mutual Water Company divert relatively large amounts of water by gravity into ditches leading to their individual distribution systems. Various methods of irrigation are in general practice. These include contour checks, strip or border checks, basin checks, furrows, wild flooding, and sprinklers. The use of sprinklers has increased in popularity within the past few years, especially for use on orchards.

Water diverted to Butte Creek from the West Branch Feather River through the Hendricks Canal and De Sabla Powerhouse at times causes wide fluctuation in the Butte Creek flow. In accordance with "Memorandum and Order" entered May 10, 1949, by the Superior Court of Butte County, water users below Parrott Dam (where the imported water is rediverted) must be provided their natural flow allotments at all times without undue fluctuation caused by intermittent presence of imported water. For the past several years PG&E has maintained reasonably steady releases. Because of damage to some of their facilities, fluctuations in 1968 were greater than usual. However, their releases in 1969 were steady once again.

The Butte Creek decree (see Table 1) established three priority classes for summer distribution purposes and, in addition, defined two surplus flow allotments.

1969 Distribution

Watermaster service began June 26 in the Butte Creek service area, and continued until October 2. Harold B. German, Associate Engineer, Water Resources, was watermaster during this period. The available water supply for the 1969 irrigation season was considerably above normal. Some water was available for the two higher surplus class users throughout the season. This is an extremely unusual situation.

Special Occurrences

Several applications to appropriate surplus water during the spring months have been approved by the State Water Resources Control Board, subject to regulation and distribution by State watermaster service. Consequently,

during the 1970 season, watermaster service will probably begin in late April, at least a month earlier than usual.

Measuring devices planned for construction and installation during the coming year are: an 8-foot Parshall flume in the Parrott Investment Company lateral from Edgar Slough; a 10-foot Parshall flume in Edgar Slough near Crouch Avenue; a flow meter at the Newhall Land and Farming Company diversion; a flow meter at the Gorrill Land Company diversion; and repair of several small structures.

BUTTE CREEK WATERMASTER SERVICE AREA 1969 Daily Mean Discharge in Cubic Feet Per Second

TABLE 9
BUTTE CREEK NEAR CHICO

<u>Oay</u> :	March	: April	: <u>May</u> :	June	: July :	August	: <u>September</u>	: <u>Oay</u>
1	1330	1020	961	571	263	178	161	1
2 3	1070 960	975 949	923 929	543 527	260 257	177 175	158 161	2 3 4 5
4	844	850	843	516	254	179	160	4
5	767	1550	860	498	252	174	159	
6	725	1380	988	486	248	175 174	157	6 7 8 9 10
/ 8	6 85 6 4 7	1120 987	1090 1120	460 440	241 226	173	157 161	8
8 9	613	919	1170	443	221	173	161	9
10	581	849	1260	429	216	172	159	
11 12	544 519	849 903	1290 1250	447 414	210 207	172 171	160 160	11
13	497	869	1200	414	207	169	166	12 13
14	479	838	1130	398	204	168	169	14
15	477	791	996	387	2 06	170	170	15
16	489	774	964	392	201	170	172	16
17 18	515 542	802 893	952 957	360 350	195 189	170 170	172 172	17 18
19	556	880	933	365	192	169	173	19
20	561	906	858	345	191	168	1 75	20
21	635	969	816	330	188	167	177	21 22
22 23	605 610	1050 1280	804 795	316 307	189 193	165 165	175 171	22
24	614	1090	783	302	196	164	160	23 24
25	617	938	746	293	189	164	1 83	25
26	633	860	742	289	187	165	174	26 27
27 28	6 7 9 734	821 823	699 645	280 280	1 83 1 81	165 165	155 133	27
29	791	908	609	280	179	164	120	2 8 2 9 3 0
30 31	881	968	601	271	179	163	127	30
Mean	<u>994</u>	960	595	- 391	<u>179</u> 209	<u>-163</u> 170	162	31 Mean
Runoff In-	42040	57150	56550	23250	12850	10430	9640	Runoffin
Acre-Feet	12070	07100	00000	20200	12000	10430	3040	Acre-Feet

BUTTE CREEK WATERMASTER SERVICE AREA 1989 Daily Mean Discharge in Cubic Feet Per Second

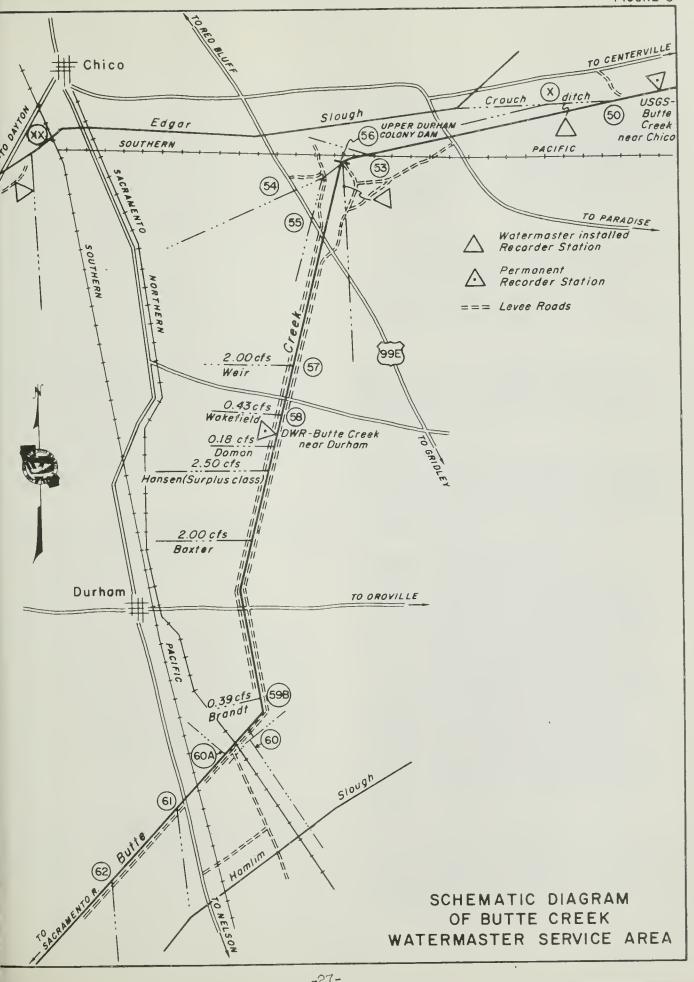
TABLE 10 BUTTE CREEK NEAR OURHAM

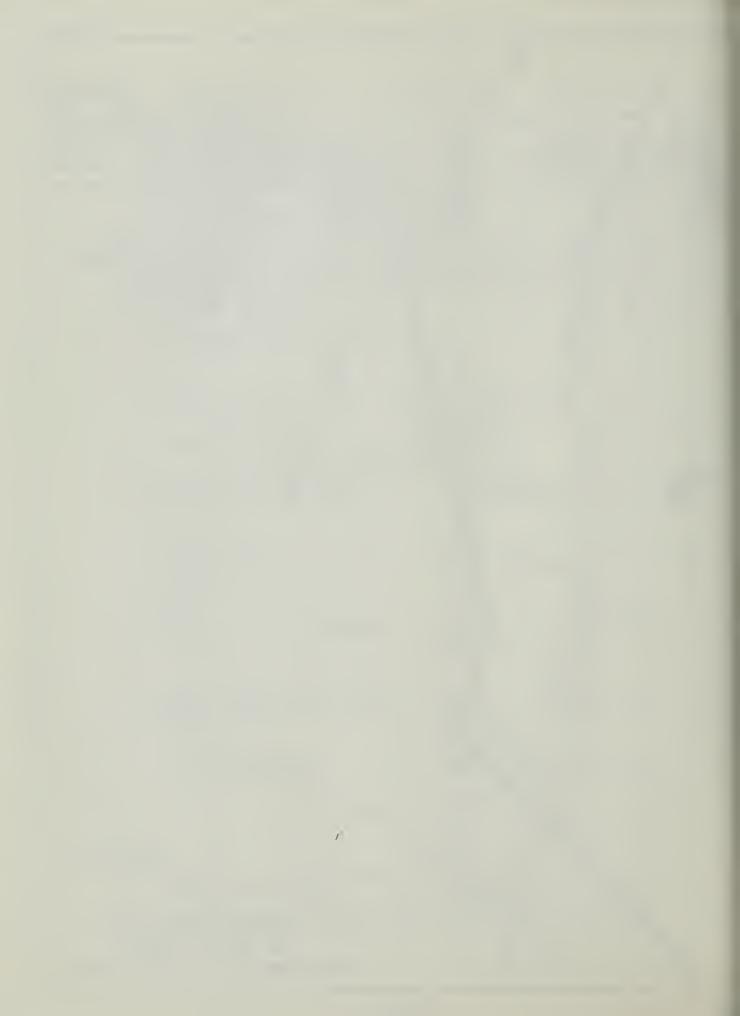
Day :	March	: April	: May	: June	: July :	August	: September	: Day
1	1350	1080	853	335	111	20	5.0	1
2	1060	1030	789	286	107	26	4.1	2
3	996	1020	809	270	95	14	3.5	3
4	890	907	712	271	85	8.3	4.4	4
5	798	1680	691	271	90	5.7	4.6	5
6	758	1530	802	267	96	4.9	4.6	6
7	720	1220	935	260	86	7.7	4.5	7
8	689	1080	1010	260	73	13	4.9	8
9	664	1020	1070	265	65	16	6.7	9
10	644	945	1160	261	62	27	7.5	10
11	644	939	1180	312	57	21	10	11
12	655	999	1140	280	58	9.1	20	12
13	622	959	1090	262	53	18	19	13
14	575	928	999	254	46	19	21	14
15	554	868	827	232	50	20	34	15
16	539	839	775	240	58	22	46	16
17	532	865	748	194	57	21	57	17
18	531	970	772	168	37	22	66	18
19	521	955	742	183	33	26	81	19
20	497	963	707	151	43	24	83	20
21	563	1010	657	114	48	23	76	21
22	531	1120	636	92	45	22	70	22
23	535	1330	625	72	55	23	105	23
24	542	1110	61 8	62	84	23	94	24
25	550	945	573	45	47	22	145	25
26 27 28 29 30 31	569 628 705 783 885 1020	832 783 767 866 928	567 520 446 404 385 380	36 26 25 23 97	23 22 23 23 23 22 57.3	15 10 9.4 11 9.0	106 87 56 47 45	26 27 28 29 30 31
Mean Runoff In Acre-Feet	42700	60500	762 46800	11100	3520	1030	2610	Mean Runoff In Acre-Feet

TABLE 11
TOADTOWN CANAL ABOVE BUTTE CANAL

				• / / / / / / / / / / / / / / / / / / /				
0 a y : 1 2 3 4 5	123 119 119 119 119	: April : 125 123 124 123 126	May : 125 125 124 124 123	June : 117 116 116 116	July : 114 116 114 114 111	78 77 76 76 76 78	75 76 76 76 76 76 74	: <u>Day</u> 1 2 3 4 5
6	120	123	122	116	109	78	74	6
7	119	122	120	116	105	77	74	7
8	116	124	123	116	91	77	78	8
9	114	124	125	117	90	78	78	9
10	114	123	124	117	86	78	76	10
11	113	124	122	119	84	78	78	11
12	111	126	118	117	83	77	79	12
13	110	125	118	117	83	76	88	13
14	110	124	118	116	85	76	90	14
15	115	124	117	117	86	79	91	15
16	117	124	117	116	85	81	92	16
17	119	126	116	114	77	78	91	17
18	120	126	117	117	76	78	89	18
19	119	125	117	119	79	78	92	19
20	119	124	117	118	78	78	92	20
21	124	125	116	118	78	77	92	21
22	122	125	116	116	83	77	90	22
23	119	129	118	117	84	76	92	23
24	117	128	117	116	83	76	91	24
25	124	125	118	113	81	76	92	25
26 27 28 29 30 31	124 124 124 124 124 	123 124 123 118 119	118 118 118 117 117	110 113 119 118 116	78 78 76 76 77 78	76 76 76 75 75	89 55 45 43 43	26 27 28 29 30 31
Mean Runoff In Acre-Feet	7310	7390	7340	6920	5430	4590	4700	Mean Runoff In Acre-Feet

Diversion #	Water Right Owner	Amount in cfs	Remarks
Butte Creek			
50 X XX	M. & T. Incorporated M. & T. Incorporated Parrott Investment Company Parrott Investment Company Taylor Dayton Mutual Water Company Dayton Mutual Water Company	53.33 25.00 53.33 25.00 3.00 16.00 3.33	Imported water* Surplus class Imported water* Surplus class Imported water*
	*Water imported by PG&E from Hendricks Canal and released conveyance losses.		
53	U. S. Department of Agricultu	re 2.00	
54	Patrick Lavy Smith Towne and Jayred	3.33 1.89 0.555 1.115	
55	Camenzind Brothers	3.11	
56	Durham Mutual Water Company Parrott Investment Company Carlson Bell Domom Brothers Logan Vernoga Konyn Bebich Setka Wheelock Total	44.70 2.00 0.48 0.39 0.67 0.01 1.447 0.40 0.446 0.447 0.26	
60	Newhall Land & Farming Compar Newhall Land & Farming Compar		Surplus class
6 0 A	Phillips	0.66	
61	Gorrill Land Company (see Hamlin Slough)	1.00 20.70	Surplus class
62	White	1.00 9.50	Surplus class
Hamlin Slou			
	Newhall Land & Farming Compar Gorrill Land Company	16.60 21.70	
	(Total diversions from Butte exceed 21.70 cfs).	Creek and Hamlin S	lough not to





Cow Creek Watermaster Service Area

The Cow Creek service area is located in Shasta County in the foothills east of Redding. There are 89 water right owners in the area with total allotments of 56.367 cubic feet per second. The major streams in this area are: North Cow Creek (commonly called Little Cow Creek), Cedar Creek (a tributary to North Cow), Oak Run Creek, and Clover Creek. These creeks, which are all tributaries of Cow Creek, flow in a westerly or southwesterly direction through narrow valleys joining Cow Creek near the town of Palo Cedro. service area is located in the narrow valleys along the several creeks and consists of small parcels separated by brush-covered hills in the lower elevations. There are dense coniferous forests in the higher regions. The entire area is about 25 miles long by 10 miles wide and varies in elevation between about 500 and 4,000 feet.

A schematic drawing of each major stream system in the Cow Creek service area is presented as Figures 6 through 6c, pages 32 through 35.

Water Supply

Water supply for this service area is derived mostly from springs and seepage, with some early snowmelt runoff. A considerable portion of the watershed consists primarily of low brushy hills which do not accumulate a heavy snowpack. Relatively large amounts of precipitation during the winter normally produce substantial springs and seepage that flow throughout the irrigation season.

Cedar Creek flow is usually sufficient to supply all allotments until about July 15. Thereafter, it steadily decreases throughout the remainder of the season.

The flow of North Cow Creek in average years is adequate to supply nearly 100 percent of all allotments. In dry years it is necessary to reduce allotments up to 50 percent during the latter part of the summer.

The flow of Oak Run Creek is augmented by a first priority allotment of five cubic feet per second of imported water from the North Cow Creek watershed. The combined flow is generally adequate to supply all allotments throughout the season.

Clover Creek produces enough water to meet nearly all allotments throughout the season. In dry years, diversions may be reduced to about 70 percent of decreed allotments.

Records of the daily mean discharge of North Cow Creek near Ingot are presented in Table 12. Numerous additional gaging stations were maintained in various diversion ditches.

Method of Distribution

Water in the Cow Creek service area is used for domestic and stockwatering purposes and for irrigation of meadow hay, alfalfa, small orchards, and vegetable gardens. The alfalfa and hay lands are irrigated primarily by wild flooding, although some sprinklers are used. Furrows are used for irrigating gardens, and basins or checks and sprinklers are used for orchards. Much of the water applied is lost by surface runoff or by deep percolation, some of which returns to the creeks and thereby becomes available for rediversion downstream.

Only one priority allotment was provided in each of the Cow Creek service area decrees (see Table 1) except for the Oak Run Creek decree which contains a surplus allotment.

1969 Distribution

Watermaster service began July 1 in the Cow Creek service area and continued until September 30. Ross P. Rogers, Water Resources Engineering Associate, was watermaster during this period.

The available water supply for the Cow Creek service area was far above average. Severe snowstorms during the preceding winter accounted for a near-record snowpack at the higher elevations. Runoff during the spring and early summer months was exceptionally high. Late summer flows also remained higher than normal. Consequently, most users received adequate water supplies throughout the season.

Despite above-average temperatures for extended periods, with accompanying high evaporation and ditch losses, the irrigation season was, in general, very successful.

Cedar Creek. Cedar Creek consistently has the lowest ratio of water supply to water rights in the Cow Creek service area. Even in years of adequate supply on neighboring streams, Cedar Creek water users usually have insufficient water during late July, August and September. However, during 1969 some water right owners did not use their allotments. Consequently, those using water received a reasonable supply throughout the summer.

North Cow Creek. The water supply in North Cow Creek was outstanding until late summer. Most water right owners

were able to divert more than their allotments through the early part of the season. Throughout August and September, historically critical months, flows were sufficient to satisfy the full allotments to all users who were diverting water.

Oak Run Creek. The available water supply in Oak Run Creek was sufficient to supply surplus flows to most water users throughout the season.

Water was available for irrigation of riparian lands downstream from the adjudicated area throughout the summer. This is an unusual occurrence.

Clover Creek. The available water supply in Clover Creek was sufficient to supply all demands. Surplus water was available until late August. Because some water right owners did not use their full entitlements, sufficient flow existed to satisfy 100 percent of the remaining allotments throughout the season.

Special Occurrences

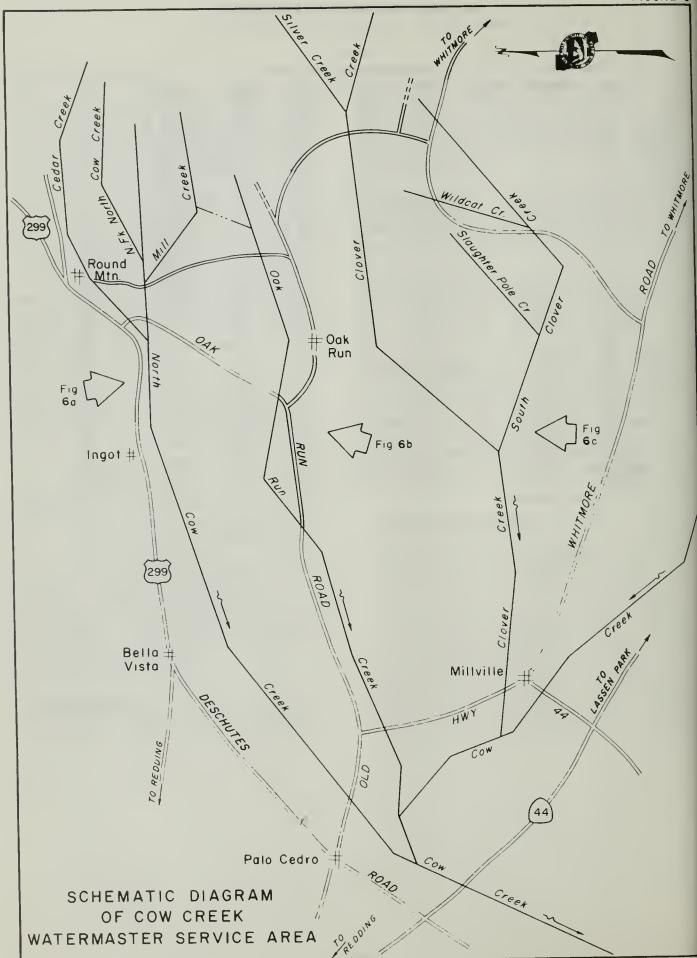
A concrete and metal automatic division and weir box was constructed at the Enke lateral on the Welch and Strayer ditch in Oak Run Creek. Several similar structures are planned for construction on this ditch next season. A two-foot concrete Parshall flume will be built in the Rickert ditch on North Cow Creek this fall. A large concrete diversion dam with a metal screw-type headgate will also be constructed this fall on Clear Creek at the Mill ditch diversion

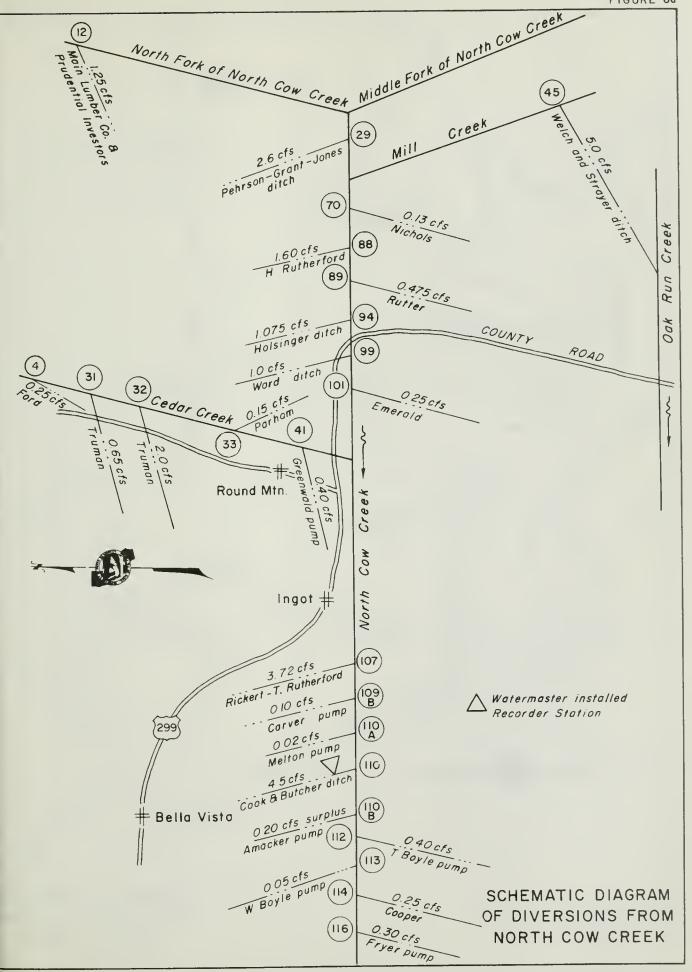
COW CREEK WATERMASTER SERVICE AREA 1969 Daily Mean Discharge in Cubic Feet Per Second

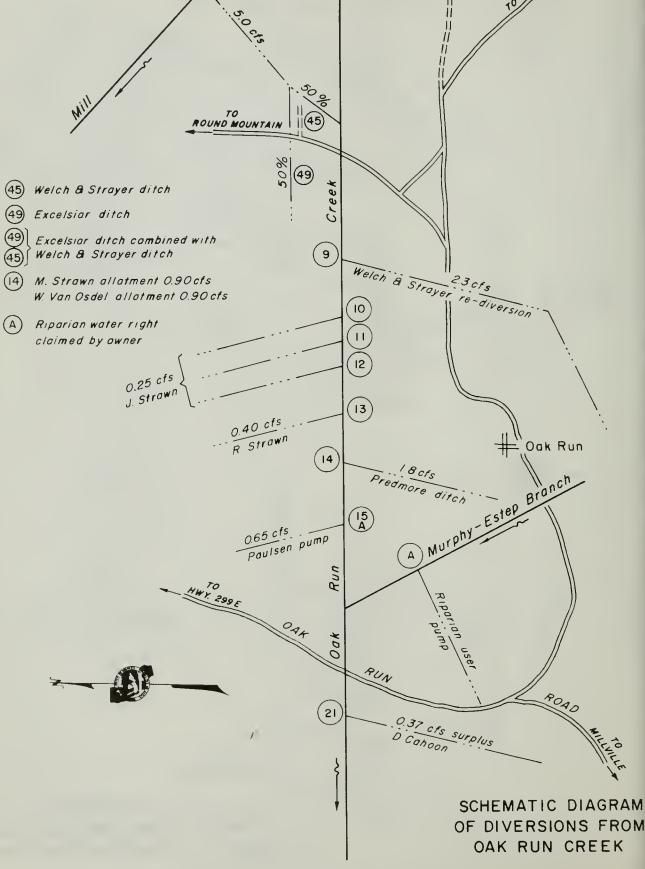
TABLE 12 NORTH COW CREEK NEAR INGOT

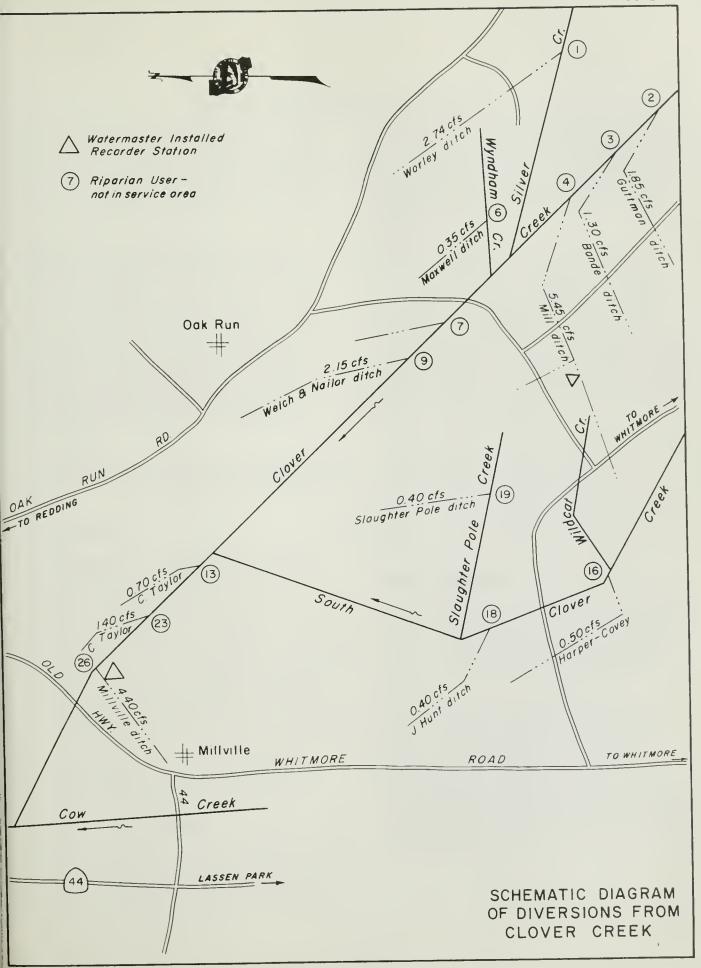
Day : March : April :	May : June :	July : Aug	ust : September	: <u>Oay</u>
1	103*	27 1	2 10 2 10	1
ż	96	26	2 10 10	2 3 4 5
3	92	26	2 10 1 10	4
2 3 4 5	96 92 87 82		1 10	5
	78		2 10	6
6 7	72	21 1	11 10	7
8	72		1 10 11 10	8
8 9 10	75 73	20	10	6 7 8 9 10
11	75		10	
12	65	18	11 10	12
13	61	18	11 10 11 10	13
14 15	61 5 7 52		11 10 10 10	11 12 13 14 15
	49		11 10	
16 17	46	15	10 10	17
18	44	15	10 10	18
19	43 42	16 15 15 15 15	10 14 10 14	16 17 18 19 20
20				
21 22	41 39	15 14	10 13 10 12	21 22 23 24 25
23	36	15	11 12	23
23 24	35	15	11 12	24
25	34		11 12	
26 27	34 32	15 13	10 12 11 11	26 27
2 / 2 A	31	13	ii ii	28
2 8 2 9	30	13	10 11	29
30 31	28	13 13	10 11 10	26 27 28 29 30 31
Mean	56.8	17.8	10.810.8	Mean
Runolf In	3380		62 645	Runoff In Acre-Feet
Acre-Feet	0000	, , , , , ,	010	Acre-Feet

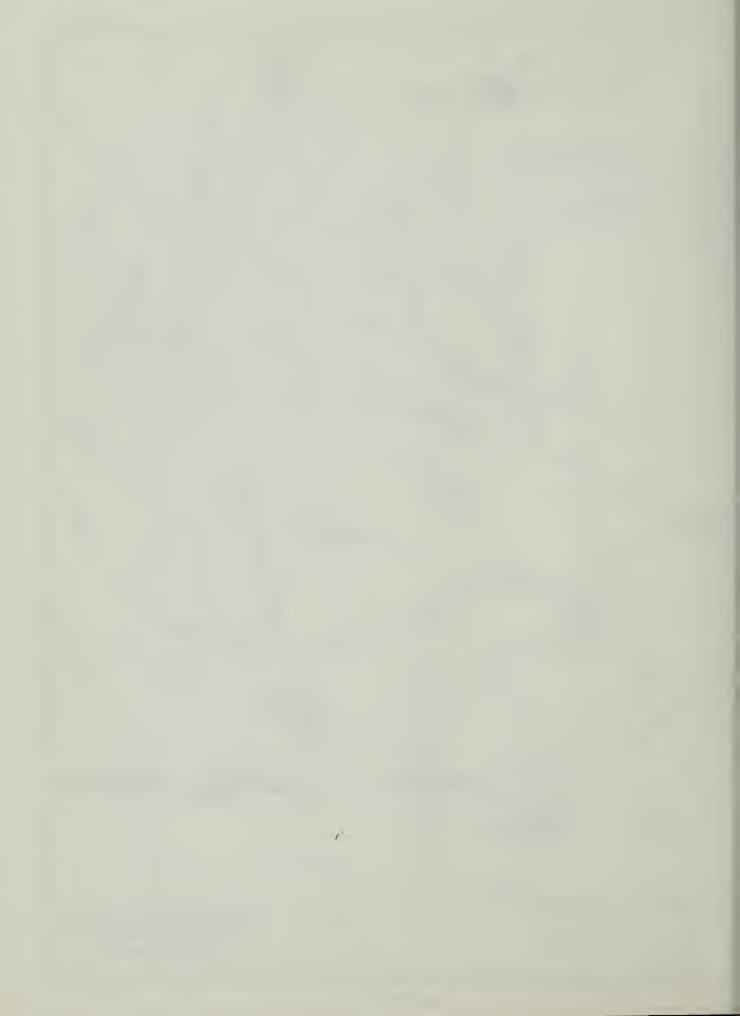
^{*} Beginning of Record











Digger Creek Watermaster Service Area

The Digger Creek service area is located in southeastern Shasta County and northeastern Tehama County. There are 35 water right owners in the area with total allotments of 23.225 cubic feet per second.

Digger Creek forms a portion of the boundary line between Shasta and Tehama Counties. It drains an area of approximately 45 square miles on the western slopes of mountains situated immediately west of Lassen National Park. The creek flows in a westerly direction through the town of Manton to its confluence with North Fork Battle Creek. Manton, the only community in the area, is located approximately 40 miles northeast of Red Bluff.

A schematic drawing of the Digger Creek stream system is presented as Figure 7, page 39.

Water Supply

Precipitation, occurring principally in the winter months, is typical of Northern California foothill areas. Snowmelt contributes to the early runoff but the summer streamflow is primarily from springs. In average runoff years there is sufficient flow in Digger Creek, with careful regulation, to satisfy all decreed allotments throughout the entire irrigation season. However, serious deficiencies occur in dry years.

The estimated daily mean discharge of Digger Creek below South Fork Branch is presented in Table 13, page 38.

Method of Distribution

There are four court decrees (see Table 1) on Digger Creek. These decrees, in effect, have divided the water rights on the creek into two groups, the upper users and the lower users. The three

upper users irrigate lands adjoining the stream so that all water not consumptively used returns to Digger Creek. The lower users are located within a five-square-mile area. Very little runoff from the lower users returns to the creek.

The three upper users' water rights are absolute and not correlative to the lower users; therefore, allotments are not cut proportionally as Digger Creek flows decrease. Since the lower users have to stand all deficiencies, their allotments are cut proportionally as the flow decreases. In effect, the upper users have first priority allotments and the lower users have second priority allotments.

Irrigation is accomplished principally by wild flooding, although border checks and sprinklers are used on a few fields. Small diversion dams are placed in the stream channel to divert water into ditches for conveyance to the fields.

1969 Distribution

Watermaster service began in the Digger Creek service area on July 1 and continued until September 30. Ross P. Rogers, Water Resources Engineering Associate, was watermaster during this period.

The available water supply in Digger Creek was outstanding. During the usually critical months of August and September, all water users received 100 percent or more of their allotments. In addition, surplus quantities ranging from 10 to 20 percent of the total adjudicated water rights flowed unused from the service area.

Special Occurrences

The following structures will be constructed before the start of the 1970 irrigation season: A one-foot concrete Parshall flume in the Love's Mill Branch; a concrete turnout and weir

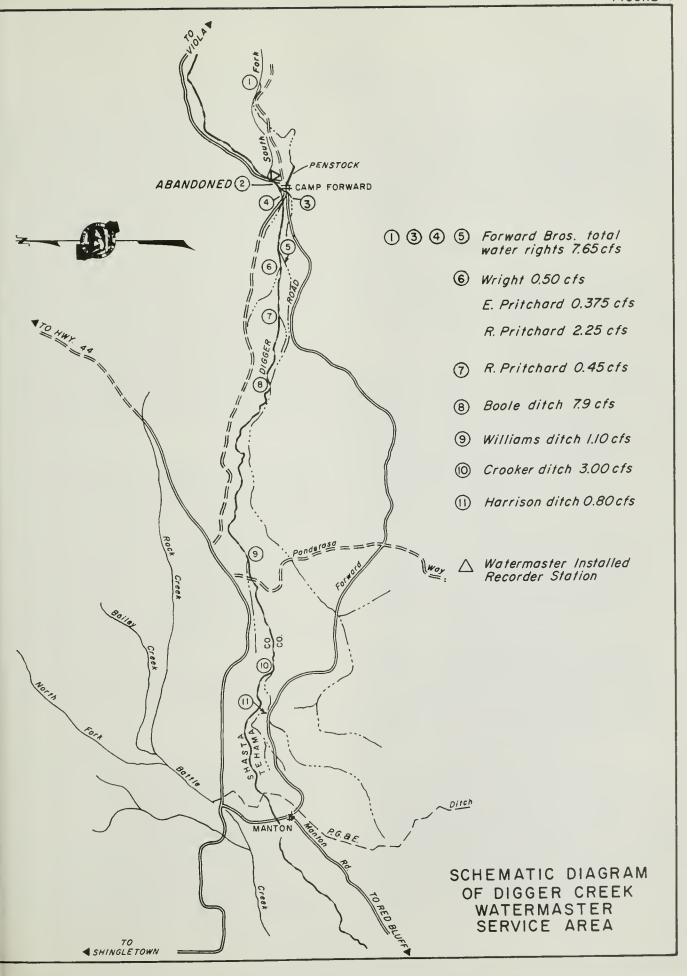
structure with metal screw-type headgate in the Crooker-Harrison ditch at the Harrison lateral; a concrete automatic division box at the lower end of the Crooker lateral; and a Hersey flow meter at the lower end of the Crooker lateral to regulate and measure several small domestic water rights.

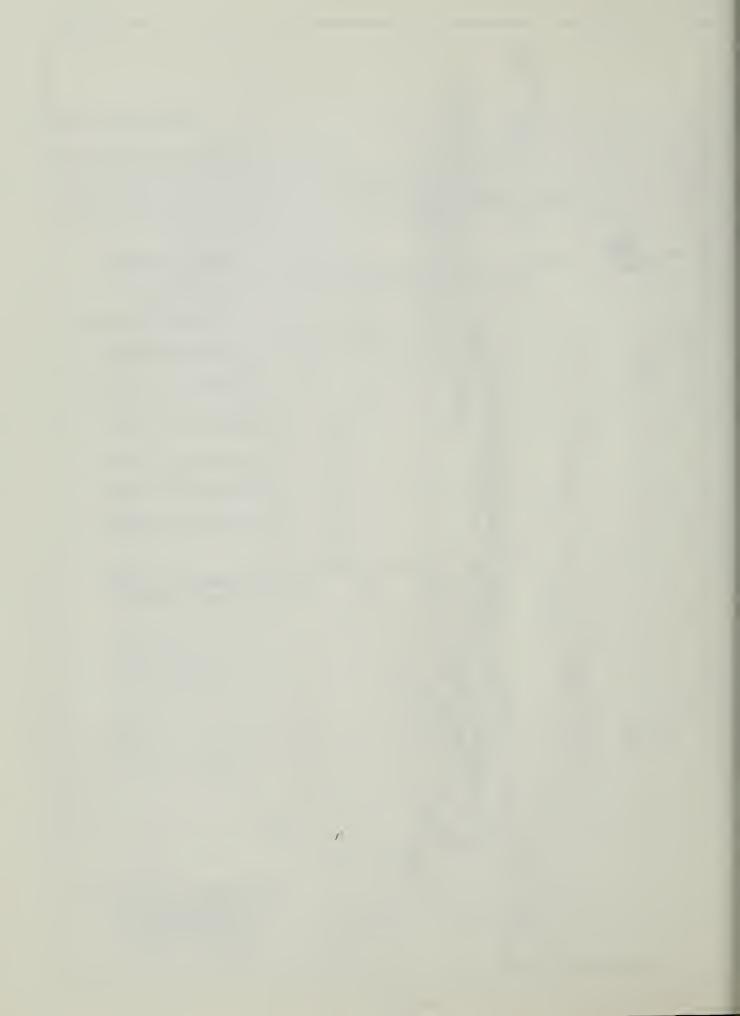
DIGGER CREEK WATERMASTER SERVICE AREA 1969 Daily Mean Discharge in Cubic Feet Per Second

TABLE 13
OIGGER CREEK BELOW SOUTH FORK BRANCH

O TOOLK ONLER BLECK OO			0	
Day : March : April : May : June	: <u>July</u> :	August :	September	: Day
1	42*	33 33 33	28 28	1
2 3 4	41. 41	33	28 28	3
3	40	32	27	4
5	40	32 32	27	2 3 4 5
	40	32	27	
7	39	32	27	7
6 7 8 9 10	39 39 38	32 32	27	6 7 8 9 10
9	39	32 31	26 26	10
11	38	3 31	26 26	11 12
12 13	38	31	26	13
14	37 37 37	31	25	14
15	37	30	25	15
	37	30	25 25	16
16 17	36 36	30	25	17
1.8	36	30	25	18
18 19 20	36 36	30 30	25 25	18 19 20
21 22 23 24 25	35 35 35 35 35	29	25 25	21 22 23 24 25
22	35	29	25	23
24	35	29 29 29 29	25 25	24
25		29	25	
26	34	29	25	26 27
27	34	29	25	27
26 27 28 29	34	28	25 25	28 29 30 31
30	33	28	25	30
31	34 33 33 36.9	28		31
Mean	36.9	29 29 28 28 28 28	25.8	Mean
Runoff In Acre-Feet	2270	1870	1540	Mean Runoff In Acre-Feet
ACIG-FEEL				H010-1061

^{*} Beginning of Record





French Creek Watermaster Service Area

The French Creek service area is located in western Siskiyou County near the town of Etna in Scott Valley. There are 26 water right owners in the service area with total allotments of 30.59 cubic feet per second. The major sources of water supply are French Creek, Miners Creek, and North Fork French Creek. French Creek flows in a northeasterly direction through the central part of the service area. Miners Creek begins east of the headwaters of French Creek and flows in a northerly direction, joining French Creek about 3 miles above its confluence with Scott River. North Fork French Creek begins north of the headwaters of French Creek and flows easterly, joining French Creek one mile upstream from the confluence with Miners Creek.

The service area encompasses the entire agricultural area within the French Creek Basin, and some additional lands along the west side of the Scott River near the town of Etna. The service area is about one-half mile wide and five miles long, with the main axis and drainage running from south to north. Elevations of the agricultural area range from about 3,200 feet at the south to about 2,800 feet at the confluence of French Creek and Scott River.

A schematic drawing of the French Creek stream system is presented as Figure 8, page 43.

Water Supply

The water supply is derived from snowmelt runoff, springs and seepage, and occasional summer thundershowers.

The watershed of French Creek contains about 32 square miles of heavily forested, steep, mountainous terrain of the easterly slopes of the Salmon Mountains. It varies in elevation from about 7,200 feet along its west rim to

about 3,200 feet at the foot of the slopes bordering French Creek Valley. Snowmelt runoff is normally sufficient to supply all demands until about the middle of July. The daily mean discharge of Duck Lake Creek is presented in Table 14, page 42.

Method of Distribution

Irrigation is accomplished primarily by wild flooding of permanent pasture and alfalfa fields. Water is conveyed by ditches and laterals to the place of use.

The French Creek decree (see Table 1) provides three separate areas of distribution within the service area and establishes the following number of priority classes for these areas: French Creek, including Horse Range Creek, Paynes Lake Creek, and Duck Lake Creek - seven; Miners Creek - three; North Fork French Creek - three.

1969 Distribution

Watermaster service began in the French Creek service area on July 1 and continued until September 30. John A. Nolan, Water Resources Technician II, was watermaster during this period.

Because watermaster service was initiated during the 1969 season, there is little data available for a water supply comparison with past years. However, it is the opinion of most ranchers in the area that above-average water year conditions existed.

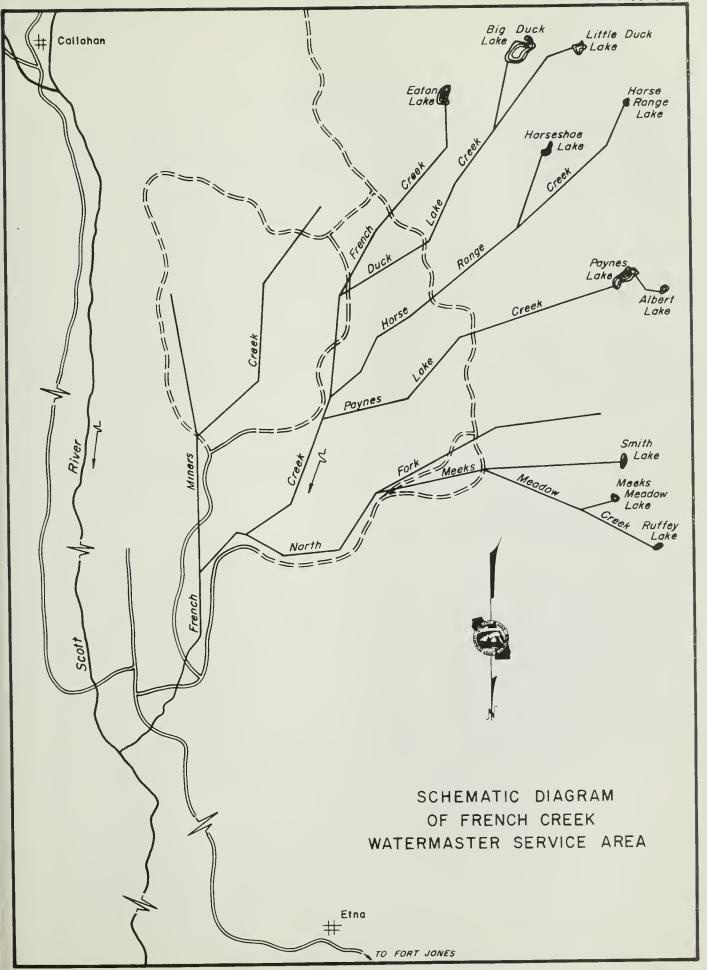
To provide efficient watermaster service on French Creek, installation of permanent-type control structures and measuring devices is planned for each diversion ditch now in use. During the year, 5 metal screw-type headgates, 3 concrete Parshall flumes, and 6 concrete weir boxes were constructed. Additional structures will be built during the 1970 season.

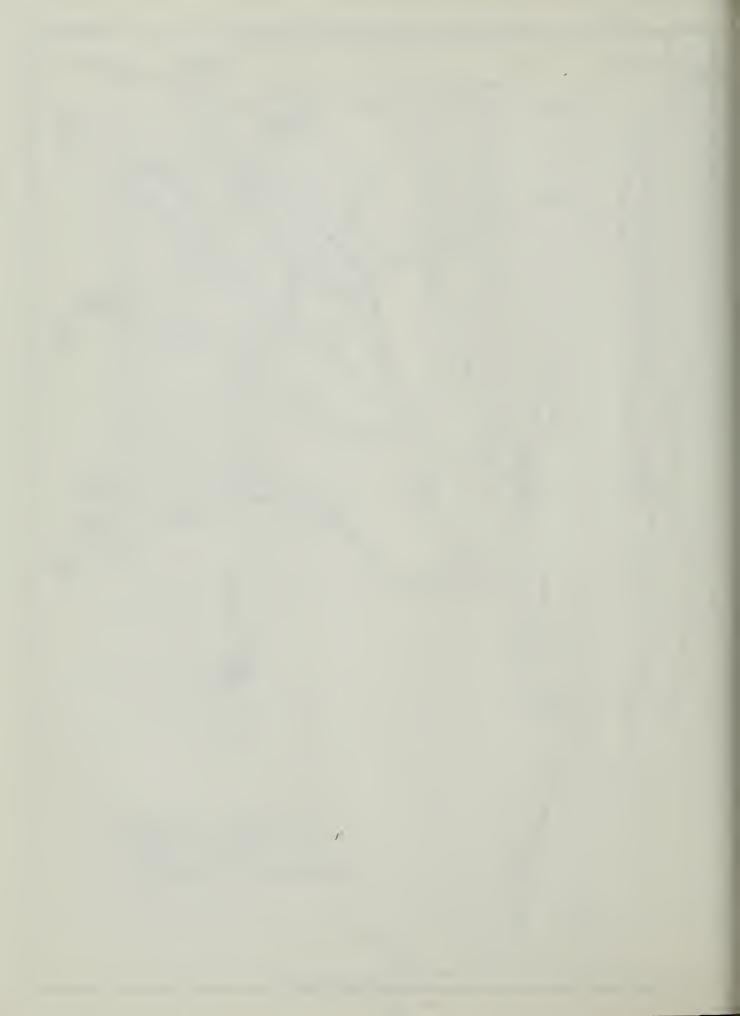
FRENCH CREEK WATERMASTER SERVICE AREA 1969 Daily Mean Discharge in Cubic Feet Per Second

TABLE 14
DUCK LAKE CREEK TRIBUTARY TO FRENCH CREEK

Day :	March :	April	: May	:	June	:	July	: August	: September	: Day
1							8.2* 8.2 7.8 7.4	2.8	1.1	1
2 3 4 5							8.2	2.7	1.1	2
4							7.4	2.5	1.1 1.1	3
5							7.1	2.8 2.7 2.5 2.3 2.2	i.i	2 3 4 5
6							6.8		1.1	
6 7 8 9 1 0							6.1	2.0 2.0 2.0	1.1	7
9							5.8 5.6	2.0	1.1	8
10							6.8 6.1 5.8 5.6 5.4	1.9	i. i	6 7 8 9 10
11								1.8	1.1	1.1
12 13							5.0 4.8 4.6	1.8 1.7	1.1	12
13							4.6	1.7	1.1	13
14 15							4.4	1.7	1.1	11 12 13 14 15
16 17							4.2	1.7	1, 1	
17							4.1	1.6	1.1	17
18 19							3.9	1.6	1.1	18
20							4.1 3.9 3.8 3.7	1.6 1.6 1.5 1.5	1.1	16 17 18 19 20
21								1.5	1,1	21
22							3.6	1.5	1, 1	22
23							3.5	1,5	1.1	23
22 23 24 25							3.6 3.5 3.7 3.6	1.5 1.5 1.5 1.3	1.1 1.1	21 22 23 24 25
27							3.4	1.3 1.2 1.2 1.2	1.1 1.1	27
28							3.3	1.2	1.0	28
26 27 28 29 30 31							3.2	1.2	1.D 1.0	26 27 28 29 30
30							2.0	1.1	1.0	31
Mean							3.6 3.4 3.3 3.2 3.0 4.8	·		Mean -
Runoff In							295	106	65	Mean Runoff In Acre-Feet
Acre-Feet										ACTE-FEET

^{*} Beginning of Record





Hat Creek Watermaster Service Area

The Hat Creek service area is located in the eastern part of Shasta County north of Lassen Volcanic National Park. There are 47 water right owners in the area with total allotments of 135.545 cubic feet per second. Hat Creek. which flows in a northerly direction through the area, is the only source of water supply in the service area. The place of use is Hat Creek Valley, which is approximately 20 miles long and two miles wide. The valley extends northward from a point about three miles south of the town of Old Station, to the confluence of Rising River and Hat Creek. The irrigable lands, which consist primarily of volcanic ash, are interlaced with large outcroppings of volcanic rock.

Schematic drawings for both the upper and lower users' diversion systems from Hat Creek are presented as Figures 9 through 9b, pages 47 through 49.

Water Supply

The water supply of Hat Creek is derived from snowmelt runoff on Mount Lassen and from large springs. Snowmelt normally creates a high flow during May and June; however, the substantial portion of supply during the summer months comes from large springs which decrease only slightly in output. Only after a series of dry years does the flow of these springs fall much below 75 percent of total allotments.

A record of the daily mean discharge of Hat Creek near the town of Hat Creek is presented in Table 15, page 46.

Method of Distribution

The Hat Creek decree (see Table 1) divides the water rights on Hat Creek into two groups (upper users and lower users) who use the water on 10-day rotation schedules, with one priority

class for each group as the basis for distribution. Therefore, a complete reregulation of all diversions occurs every 10 days, alternating an irrigation supply to one group and a minimum flow (stockwater) to the other group.

Most irrigation in the area is accomplished by wild flooding. Large heads of water are used to cover the land rapidly, thereby preventing excessive loss from percolation in the extremely porous soil. Diversion dams constructed across the creek serve to divert water into large ditches. The fields, many of which have checks and borders, are then flooded from the main diversion ditch or from laterals. A few domestic rights are met by pumping directly from Hat Creek.

1969 Distribution

Watermaster service began May 1 in the Hat Creek service area and continued until September 30. Virgil Buechler, Water Resources Technician II, was watermaster during this period.

The available water supply in Hat Creek was extremely good. Therefore, the usual 10-day rotation schedule was not initiated until August 19. During this rotation, the lower users received 100 percent of their allotments (one priority). During the following rotation period for the upper users, the flow decreased to about 80 percent of their allotments (one priority). It remained constant at this level, about 130 to 140 cubic feet per second, throughout the season.

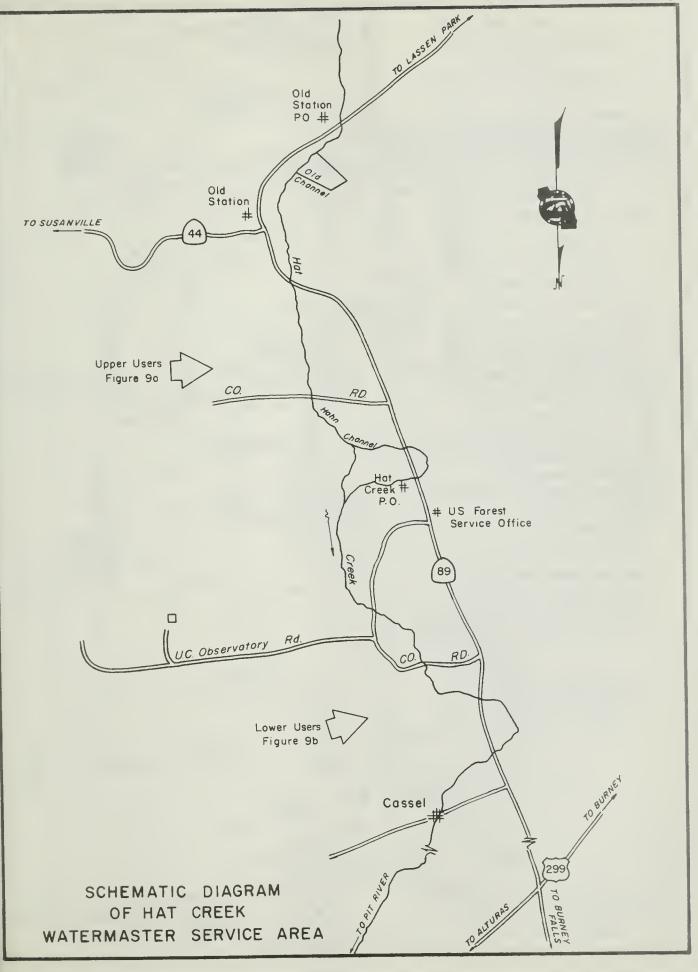
HAT CREEK WATERMASTER SERVICE AREA

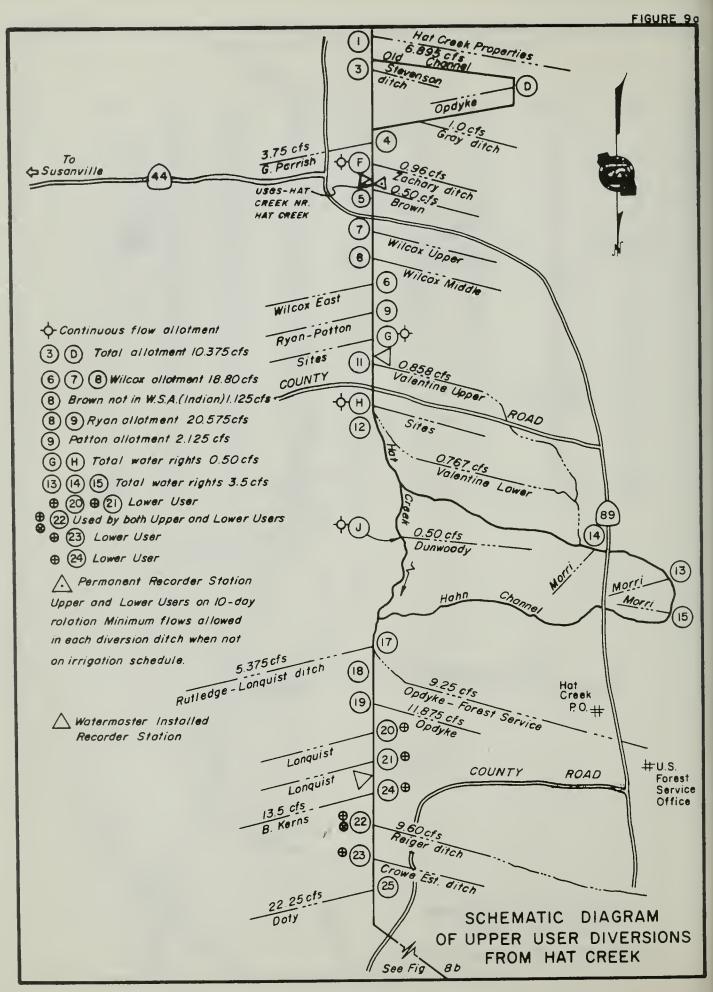
1969 Oaily Mean Discharge in Cubic Feet Per Second

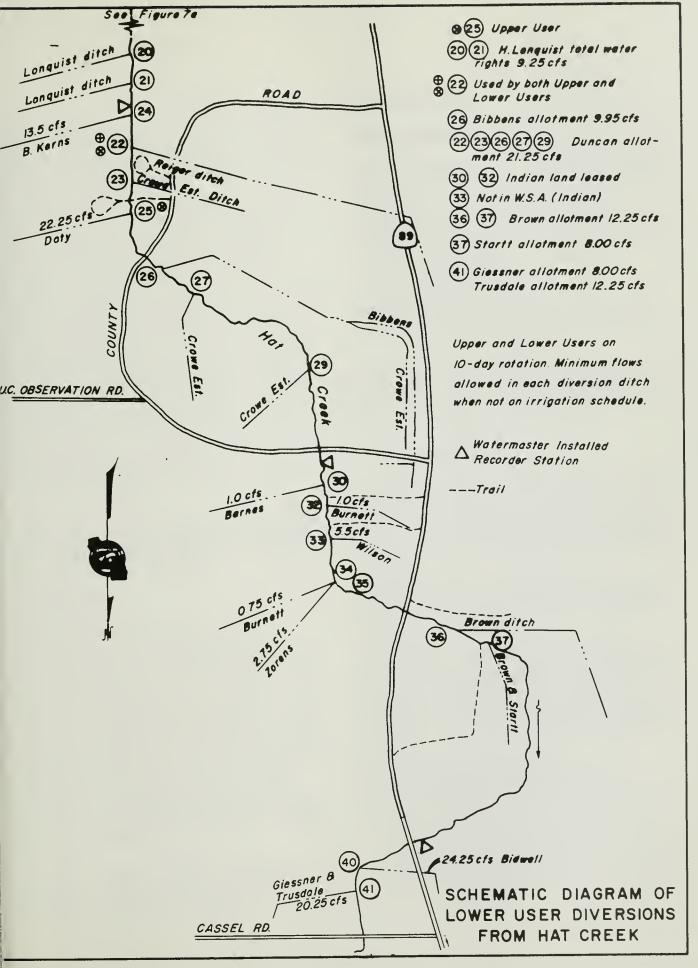
TABLE 15 HAT CREEK NEAR HAT CREEK

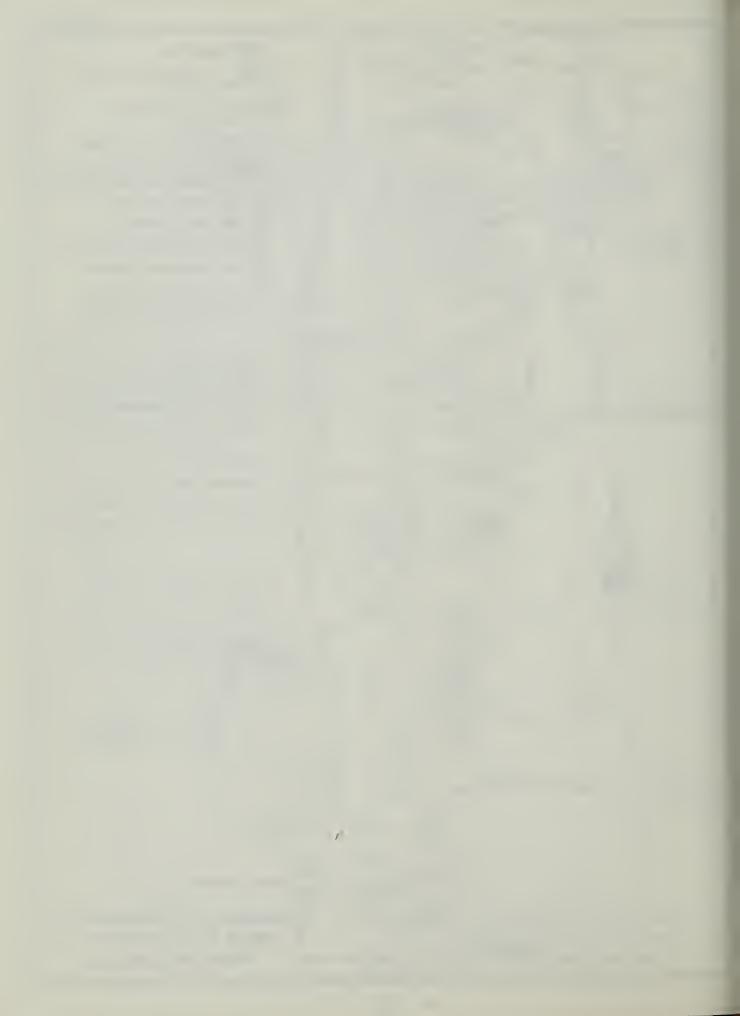
0ay :	March	: April :	May :	June	: <u>July</u> :	August	: September	: <u>Oay</u>
1	136	154	170	308	1 95	146	142	1
2	136	153	168	306	1 95	145	141	2
2 3 4	135	150	170	311	192	145	141	2 3 4 5
5	135 135	149 154	162 162	322 326	1 89 1 91	1 45 1 4 5	140 141	4 5
6 7	134	149	175	315	189	144	141	6
/	134 133	148 147	189 205	296 298	185 181	144 144	141 146	/
8 9	135	148	224	288	180	144	149	9
1 Ŏ	133	147	240	276	177	144	149	6 7 8 9 10
11	134	149	256	286	176	144	148	11
12	134	153	261	278	175	140	149	12
13	132	152	245	280	173	141	150	13 14
14	132	152	251	280	173	141	150	14
15	133	149	235	274	171	142	150	15
16	133	149	245	267	168	142	150	16
17	134	154	267	256	170	142	150	17
18	133	160	290	261	170	141	147	18 19
19 20	132 133	159 162	290	269	167	147	144	20
			273	263	164	148	142	
21	132	168	274	254	165	148	142	21
2 2 23	133 133	1 76 1 84	280 294	249 245	165 162	147 146	145 147	22
24	133	171	313	237	158	146	147	22 23 24
25	134	165	335	222	155	147	145	25
26	135	161	335	211	153	146	144	26
27	137	160	313	204	152	145	144	20 27
28	139	162	290	196	150	145	144	28
29	141	171	292	193	149	142	144	27 28 29
30	145	172	313	1 95	149	141	142	30
31	153		315		148	142		31
Mean	135	158	253	266	[7]	144	145	Mean
Runoif In Acre-Feet	8310	9380	15530	15800	10490	8860	8640	Runoff In Acre-Feet

y









Indian Creek Watermaster Service Area

The Indian Creek service area is located in the north central part of Plumas County in the vicinity of the town of Greenville. There are 43 water right owners in the service area with total allotments of 97.015 cubic feet per second. The major sources of supply in the service area are Indian Creek and two major tributaries, Wolf Creek and Lights Creek. Indian Creek and its minor tributaries rise in the mountains east of the service area. It then flows through Gennessee Valley and through Indian Valley past the towns of Taylorsville and Crescent Mills to its confluence with the North Fork Feather River. Indian Creek is joined from the north by Lights Creek and Wolf Creek in the northwest part of the valley. The major place of use is in Indian Valley, which is about four miles long and two and onehalf miles wide. The average elevation is about 3,500 feet.

A schematic drawing of each major stream system within the Indian Creek service area is presented as Figures 10 through 10c, pages 53 through 56.

Water Supply

The water supply in the Indian Creek service area is derived primarily from snowmelt runoff with springs and seepage maintaining some late summer flow. The flow of Wolf Creek is normally sufficient to supply all allotments until June 1, while Indian and Lights Creeks, with the exception of some tributaries, have sufficient flow to supply all allotments until July 1. After these dates, the flow steadily decreases throughout the season until by the end of August only a small portion of allotments is available.

A record of the daily mean discharge of Indian Creek near Taylorsville is presented in Table 16, page 52.

Method of Distribution

The basic method of irrigation in Indian Valley is wild flooding. Small diversion dams are placed in the stream channels to divert the water into distribution ditches for conveyance to the fields. Small check dams, located throughout the fields in swales, help to spread the water over the ground. There is a limited amount of check and border irrigation in the valley. A few sprinkling systems are also in use.

The Indian Creek decree (see Table 1) establishes three priority classes for each of the major stream systems within the Indian Creek service area.

1969 Distribution

Watermaster service began in the Indian Creek service area on April 11 and continued until September 30. Harvey M. Jorgensen, Water Resources Engineering Associate, was watermaster during this period.

The available water supply in the service area was slightly above average during the season.

Wolf Creek. The available water supply of Wolf Creek was sufficient to satisfy all allotments (three priorities) until July 31. The streamflow gradually decreased until only first priority allotments were being served on August 15.

Lights Creek and Tributaries. The available water supply of Lights Creek was sufficient to satisfy all allotments (three priorities) until July 15. The flow then steadily decreased until the stream was dry on August 15. The available water supply of Cooks Creek satisfied all allotments until July 25.

Indian Creek. The available water supply of Indian Creek was sufficient to satisfy all allotments (three priorities) until July 31. Sufficient underflow occurred below the Mill Race Diversion Dam to meet the allotments of the downstream users.

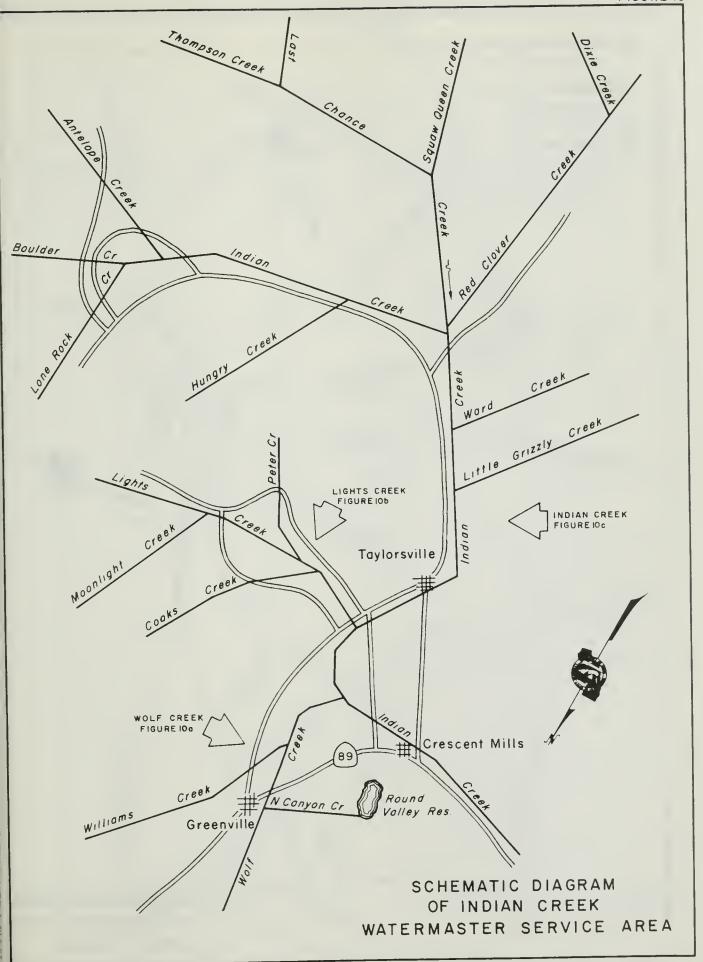
Special Occurrences

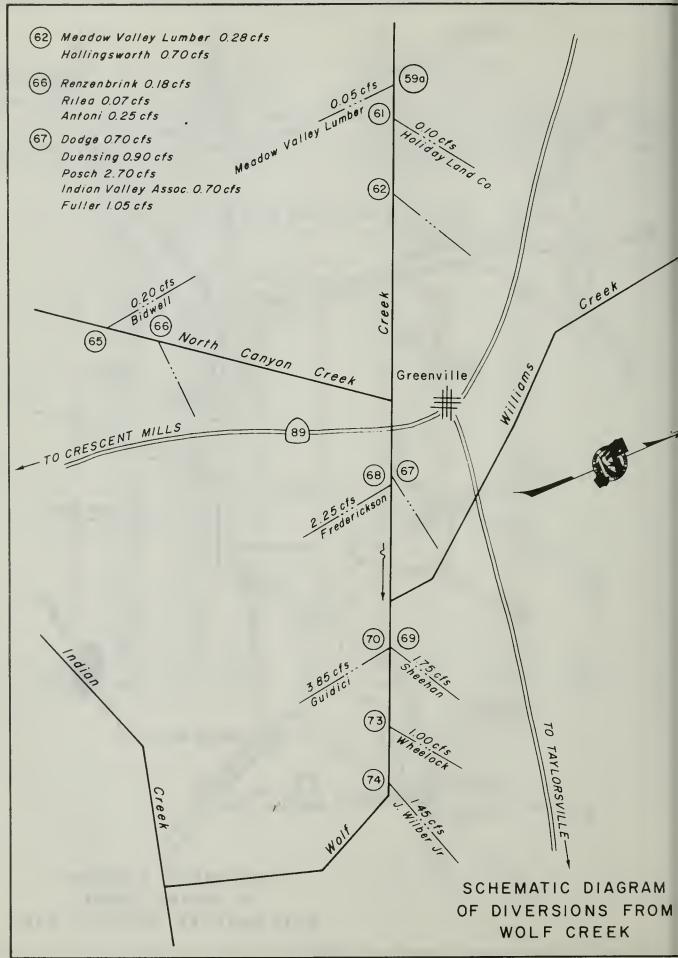
During the season it was necessary to install an orifice plate control device in diversion 54 to facilitate the routing of project water from Antelope Lake past the diversion point.

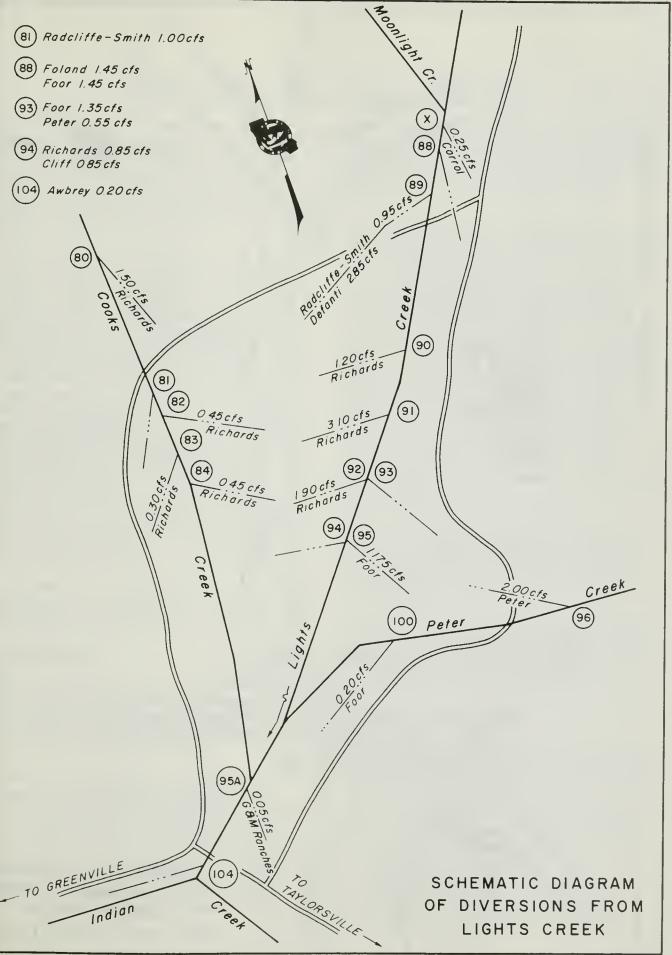
INDIAN CREEK WATERMASTER SERVICE AREA 1969 Daily Mean Discharge in Cubic Feet Per Second

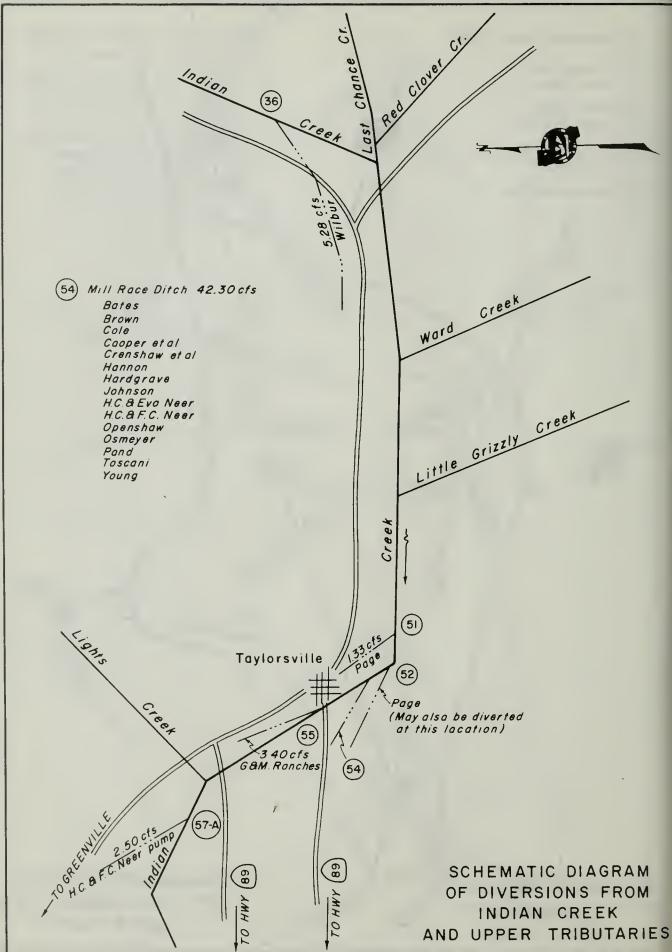
TABLE 16
INDIAN CREEK NEAR TAYLORSVILLE

0 a y : 1 2 3 4 5	305 285 296 288 278	: April 4420 3630 2740 2770 3170	2020 1910 1840 1810 1720	756 711 670 650 646	July 191 165 165 151 147	: August 68 67 66 67 66	September 48 53 54 55 54	: <u>Day</u> 1 2 3 4 5
6	295	2520	1790	603	149	64	54	6
7	290	2120	1980	540	146	61	55	7
8	292	2140	2150	546	143	57	55	8
9	298	2250	2370	637	140	55	54	9
10	285	2370	2470	576	144	53	53	10
11	283	2600	2600	565	141	52	5 0	11
12	289	2950	2670	622	132	53	4 9	12
13	271	3140	2540	549	127	52	4 8	13
14	268	2810	2250	537	123	52	4 8	14
15	277	2260	1960	528	116	51	4 8	15
16	308	2000	1810	503	111	49	49	16
17	361	2040	1780	447	107	48	50	17
18	438	2430	1750	516	102	48	50	18
19	475	2280	1650	570	98	47	49	19
20	528	2400	1510	481	96	47	48	20
21	529	2620	1410	392	94	47	5 0	21
22	528	2930	1370	361	91	46	5 0	22
23	616	3120	1350	327	86	45	4 8	23
24	697	2710	1310	309	79	45	4 7	24
25	761	2390	1230	294	77	46	4 7	25
26 27 28 29 30 31	911 1190 1600 2140 3020 4200	2170 1910 1830 2010 2120	1160 1050 939 877 835 816	253 252 217 212 210	74 67 67 64 64	47 47 46 46 47 47	4 8 4 7 4 7 4 6 4 6	26 27 28 29 30 31
Mean Runoff In Acre-Feet	44830	152400	105000	28720	6990	3240	2980	Mean Runoff In Acre-Feet









Middle Fork Feather River Watermaster Service Area

The Middle Fork Feather River service area is located in the plateau area on the west slope of the Sierra Nevada in the eastern portions of Sierra and Plumas Counties. There are 94 water right owners with total allotments of 370.865 cubic feet per second.

Major sources of supply for this service area are the Middle Fork Feather River and its tributaries in the Sierra Valley. The area is comprised of five major stream groups. These groups, starting in the north and east corner of the valley and proceeding in a southerly and westerly direction, are Little Last Chance Creek, Smithneck Creek, Webber Creek and tributaries, West Side Canal, and Fletcher Creek. The Middle Fork Feather River channel flows in a general northerly direction for approximately 20 miles through Sierra Valley. It then flows in a westerly direction. The major place of use is in Sierra Valley, which is about 15 miles long and 10 miles wide. The average elevation of the valley floor is 4,900 feet.

A schematic drawing of the Middle Fork Feather River service area is presented as Figure 11, page 60.

Water Supply

The major water supply in the Middle Fork Feather River service area is derived from snowmelt runoff, with minor flow from springs and from supplemental stored and foreign water.

Natural flows of Little Last Chance Creek are supplemented by reservoir storage provided by Frenchman Dam which was constructed by the Department of Water Resources in 1961. Stored water is released and used as needed under the provisions of an annual contract. Smithneck Creek flow is normally sufficient to supply all allotments until about the middle of May. It then decreases until about June 1. Only first and second priority allotments are then available for the remainder of the season.

The natural flow of Webber Creek is normally sufficient to supply all allotments until the middle of May. At that time up to 60 cubic feet per second is diverted from Little Truckee River to supplement the flow. This imported water is diverted through the Little Truckee Ditch into Cold Stream and then into Webber Creek for use of shareholders in the Sierra Valley Water Company. This supplemental supply decreases rapidly during July, producing only a small quantity during the latter part of the season. The West Side Canal streams normally supply all allotments until the first part of June. The flow then gradually declines throughout the season.

The flow of Fletcher Creek and Spring Channels normally supplies all allotments until July 1. The flow then gradually declines for the remainder of the season.

Records of the daily mean discharge of several stream gaging stations in the Middle Fork Feather River service area are presented in Tables 17 and 18, page 59.

Method of Distribution

Wild flooding is employed by the majority of the water users to irrigate their fields. Small diversion dams are placed in the stream channels to divert the water into individual distribution systems. Check dams are constructed in the swales to implement flooding once the water reaches the fields.

The Middle Fork Feather River decree (see Table 1) establishes the number

of priority classes for each of the major stream systems within the Middle Fork Feather River service area as follows: Little Last Chance Creek - five; West Side Canal Group - five; Fletcher Creek and Spring Channels - three; Sierra Valley Water Company - one; Webber Creek and tributaries - six; and Smithneck Creek - five.

1969 Distribution

Watermaster service began April 1 in the Middle Fork Feather River service area and continued until September 30. Joe Nessler, Water Resources Engineering Associate, was supervising watermaster during this period. Conrad Lahr, Water Resources Technician II, assisted as deputy watermaster.

An above-average water supply existed in the service area during the season.

West Side Canal Group. The available water supply in the West Side Canal Group, consisting of Hamlin, Miller, and Turner Creeks, was sufficient to satisfy all allotments (five priorities) until the latter part of August. Sufficient water was available to meet irrigation needs for the remainder of the season. The usual rotation schedule was not employed this season.

Fletcher Creek and Spring Channels.

Ample water was available to satisfy all allotments (three priorities) until about September 1. For the remainder of the season the users of Fletcher Creek rotated their water every 2 weeks.

Sierra Valley Mutual Water Company.
The Little Truckee Ditch delivered
2,609 acre-feet of water to the Sierra

Valley Mutual Water Company from July 1 through October 8. Water was distributed to shareholders in accordance with Schedule 9 of the Middle Fork Feather River decree.

Webber Creek and Tributaries. The natural flow of Webber Creek was sufficient to supply all allotments (six priorities) until about August 1. It then decreased gradually until about 50 percent of second priority allotments were being served at the end of the season.

Imported water from the Little Truckee River began supplementing the natural flow of Webber Creek on July 1 to satisfy allotments of the Sierra Valley Mutual Water Company shareholders. This flow decreased gradually from July 20 through the end of the season.

Smithneck Creek. The available water supply was sufficient to satisfy all allotments (five priorities) until approximately June 20. By mid-July the flow had receded to about 30 percent of second priority allotments. A continued decrease occurred until August when only first priority water was available. The usual rotation schedule for second priority users was not used this season due to the plentiful supply of water.

Little Last Chance Creek. Frenchman Dam and Reservoir began its eighth season of operation. Agreements concerning storage and distribution were again negotiated with the users in this stream system. Procedures and specific details of distribution and operation are covered in a separate report prepared by the Operations Section of the Central District.

MIDDLE FORK FEATHER RIVER WATERMASTER SERVICE AREA

1969 Daily Mean Discharge in Cubic Feet Per Second

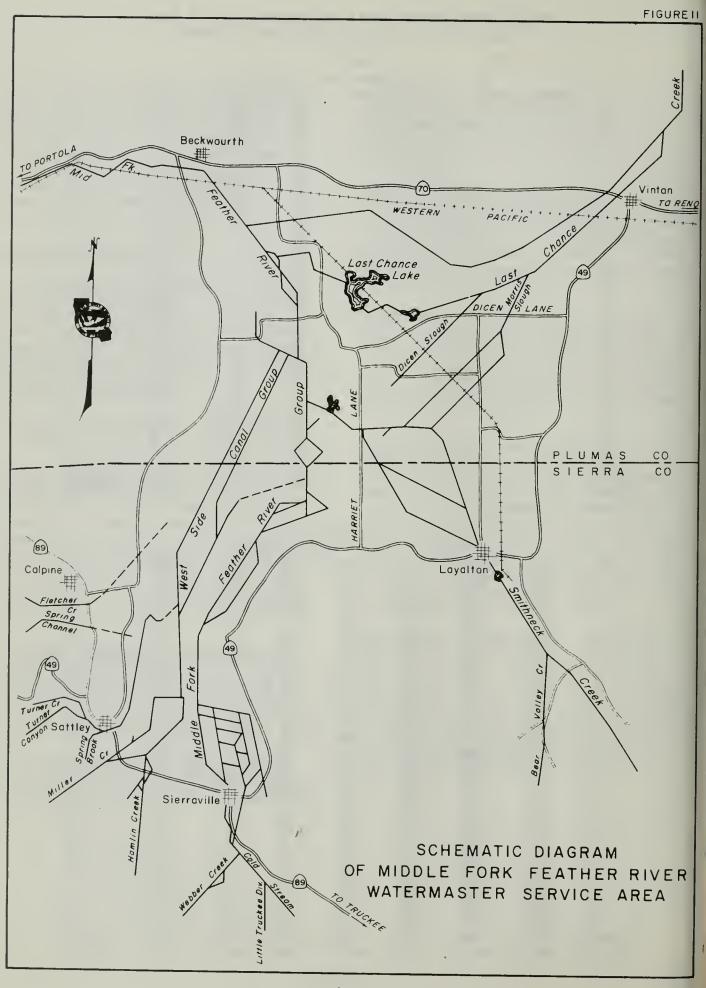
TABLE 17 LITTLE TRUCKEE OITCH AT HEAD

Gay : March : April : May : June	: July :	August :	September	: <u>Oay</u>
1 2	13* 32 31	15 13	3.8 3.8 3.8 3.8	1 2
2 3 4 5	30	12 11	3.8 3.8	2 3 4 5
	30	10		
6 7 8 9 10	29 28 25 25 25	8.9 7.9 7.0 6.5 5.7	4.1	6 7 8 9 10
8	25	7.0	4.9	8
9	25	6.5	4.9	9
			4.1	
11 12	25 25	5.7 12	4.1 4.4	11
13	25	11	3.8	13
14 15	25 25 25 28 42	11 9.5	3.8 3.6 3.6	11 12 13 14 15
16			3.6	
17	42	7.9 7.9 7.6 7.0	3.6	17
18	43	7.6	3.6	18
19 20	42 42 43 42 42	6.7	3.6 3.6 3.6 3.6	16 17 18 19 20
21	41	6.7		
21 22 23 24 25	41 39 38 36 35	6.7 5.9 5.7 5.1	3.6 3.6 3.8 3.8	21 22 23 24 25
23	38 36	5.7 5.1	3.8	23
25	35	5.1	3.8	25
26 27	30	4.9	4.1	26
27 28	2 8 2 8	4.6	4.1 4.1	27 28
2 8 2 9	23	4.1	4.4	29
30 31	21 17	4.1	4.4	26 27 28 29 30 31
Mean	<u>s</u> f.o	4.1 3.8 7.7	3.9	Mean
Runoff in Acre-Feet	1900	471	234	Mean Runoff In Acre-Feet

^{*} Beginning of Record

TABLE 18
MIODLE FORK FEATHER RIVER AT PORTOLA

		111	TODEL TONK	I CATHER I	117EN AT 101	VI O CA		
0 a y : 1 2 3 4 5	194 216 224 223 238	April : 4430 3320 2270 1730 1480	May : 966 988 1030 1120 1100	390 383 372 348 331	124 132 128 118 110	Augus t 2 8 2 6 2 5 2 3 2 3	19 8.6 5.5 4.6 5.6	1 2 3 4 5
6 7 8 9 10	233 241 252 247 252	1600 1530 1160 996 908	990 875 857 894 945	306 299 315 356 374	1 06 1 00 99 94 94	22 21 24 20 19	6.9 6.7 6.2 4.5 3.4	6 7 8 9 10
11 12 13 14 15	243 244 248 269 277	850 921 1000 1090 1160	1010 1050 1060 1080 1080	405 439 439 415 384	101 95 91 89 90	20 20 19 17	3.1 3.1 6.6 6.9 5.6	11 12 13 14 15
16 17 18 19 20	271 283 347 509 679	1 080 1 080 1 240 1 250 1 240	1060 1000 924 846 792	351 336 345 352 354	89 88 85 83 82	17 19 17 16 17	5.1 5.3 5.7 5.8 6.2	16 17 18 19 20
21 22 23 24 25	878 1050 1410 1870 2340	1180 1020 1150 1550 1730	773 762 736 672 623	348 336 331 324 296	80 80 82 83 82	20 21 26 28 69	6.1 6.0 5.9 6.2 6.6	21 22 23 24 25
26 27 28 29 30 31	2660 2920 3210 3410 3690 4250	1590 1330 1120 1010 967	584 563 534 508 476 423	263 228 197 166 133	80 77 75 58 31 30	34 34 35 30 28 22	7.6 8.1 8.1 8.3 7.6	26 27 28 29 30 31
Mean Runoff In Acre-Feet	66200	85250	52210	19670	5470	1500	387	Mean Runoff In Acre-Feet



North Fork Cottonwood Creek Watermaster Service Area

The North Fork Cottonwood Creek service area is located in the southwestern part of Shasta County near the towns of Ono and Gas Point. There are 13 water right owners in the area with total allotments of 30.30 cubic feet per second.

North Fork Cottonwood Creek and its tributaries, Moon Creek and Jerusalem Creek, are the major sources of water supply in the area. These creeks rise on the east slopes of the foothills of the Coast Range Mountains. North Fork Cottonwood Creek flows in a southeasterly direction to its confluence with Cottonwood Creek near Gas Point. The area is characterized by high summer temperatures and moderate rainfall. The irrigable land consists of sparsely scattered parcels separated by steep, brushy hills. These lands are at about the 1,000-foot elevation.

A schematic drawing of the North Fork Cottonwood Creek stream system is presented as Figure 12, page 63.

Water Supply

Snowmelt contributes to the flow in North Fork Cottonwood Creek during the early weeks of the irrigation season. However, perennial springs provide the major source of supply during the summer and fall months. The flow is normally sufficient to supply all demands. In dry years, however, the available supply may be as low as 30 to 40 percent of the decreed allotments.

A record of the daily mean discharge of North Fork Cottonwood Creek near Igo is presented in Table 19. This stream gaging station is located downstream from most points of diversion on the creek, but gives a general indication of the water supply.

Method of Distribution

The general practice throughout the area is to irrigate by wild flooding. One water user, however, pumps directly from the creek using a sprinkler system to irrigate his crops. Pumping was necessary at this diversion point because the irrigated land was higher in elevation than the creek channel.

The North Fork Cottonwood Creek decree (see Table 1) provides for distribution of water on an equal and correlative basis for all users (one priority).

1969 Distribution

Watermaster service began in the North Fork Cottonwood Creek service area on July 1 and continued until September 30. Ross P. Rogers, Water Resources Engineering Associate, was watermaster during this period.

The available water supply in North Fork Cottonwood Creek was extremely good. Very high flows occurred during the spring months. Although the streamflow decreased significantly during late July, August and September, all demands were met, due to the limited or non-use of allotments by a few water right owners.

The stream gaging station near Igo recorded a total of 2,400 acre-feet of runoff between July 1 and September 30. This is approximately 90 percent of the mean for a 13-year period of record.

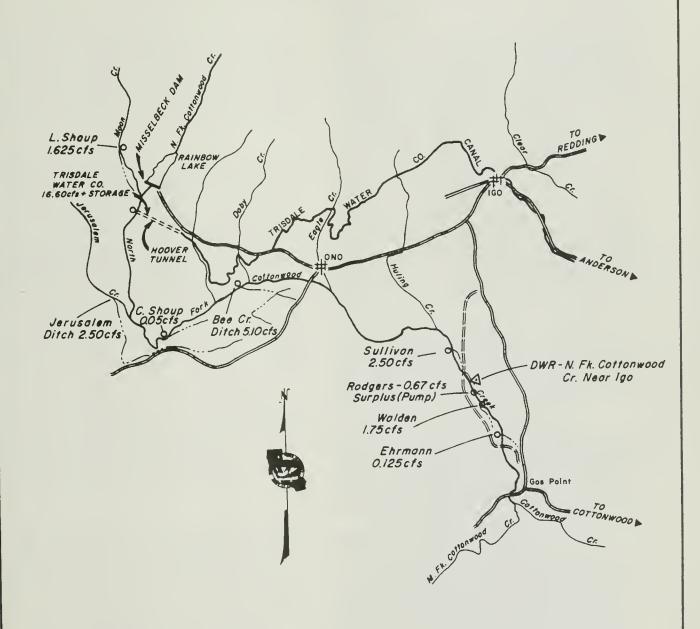
Special Occurrences

Rainbow Lake remained far below its storage capacity due to the unsafe condition of Misselbeck Dam. Curtailment of storage will continue until extensive repairs are made.

NORTH FORK COTTONWOOD CREEK WATERMASTER SERVICE AREA 1889 Daily Meen Olscharge in Cubic Feet Per Second

TABLE 19 NORTH FORK COTTONWOOD CREEK NEAR 1GO

<u>Oay</u> :	March	: April	: <u>May</u> :	June :	July :	August	: September	: Day
1	1030	593	3 05	149	34	8.9	8.7	1
2 3 4	749	614	290 275	136 116	31 33	9.1 7.7	6.8 9.1	2
3 4	802 545	567 523	262	69	31	8.4	9.2	4
5	497	567	252	61	31	7.0	8.6	2 3 4 5
8	474	509	243	57	29	7.6	8.8	
7	438	461	267	57	28	8.1	10	7
8	403	437	272	57	27	6.5	11	8
9 10	374 339	426 418	268 270	62 74	25 19	5.8 8.6	11 11	6 7 8 9 10
11							11	
12	319 333	431 468	255 245	89 76	19 19	7.2 8.7	11	11 12 13 14 15
13	295	445	236	64	19	7.7	io	13
14	285	421	234	64	19	8.3	10	14
15	261	410	210	80	19	7.2	11	
16	244	390	199	55	19	8.4	11	16 17
17 18	412	394 378	191 183	52	19 19	8.1 7.3	11 12	17
19	369 341	372	175	53 57	18	7.3	13	19
20	388	371	169	57	18	12	13	18 19 20
21	436	379	163	53	18	13	14	21
22	426	405	152	50	16	13	13	22
23	452	441	144	47	13	11	13	23
24 25	485 470	387 357	152 154	45 42	13 13	11 10	11 11	22 23 24 25
26	483	340	162					
27	517	326	152	39 38	13 12	10 10	11 10	26 27
28	562	320	148	37	12	10	6.5	28
29	588	313	156	34	11	10	6.5 8.8 9.3	29
30 31	610 619	310	161	34	10 10	10	9.3	26 27 28 29 30 31
Mean	462	426	149	62.8	19.9	<u>10</u> 9.5	fō.5	Mean 31
Runoff In	28420	25340	12880	3740				Runoffin
Acre-Feet	20420	23340	12000	3/40	1220	553	624	Acre-Feat

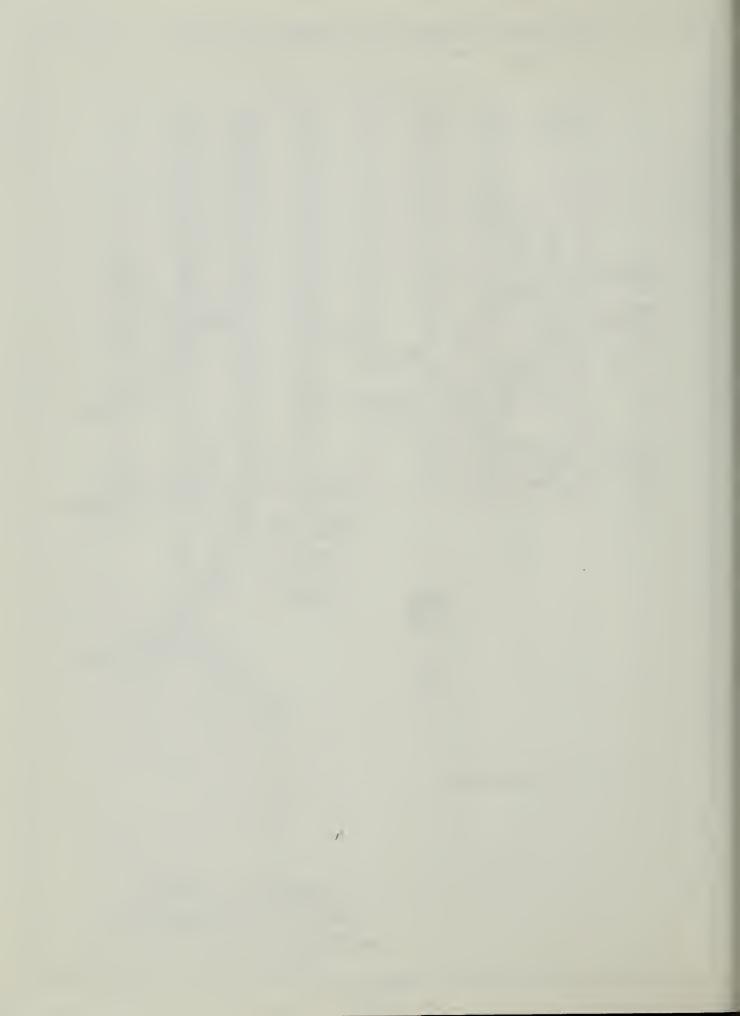


A Permanent Recorder Station

SCHEMATIC DIAGRAM

OF N. FK. COTTONWOOD CR.

WATERMASTER SERVICE AREA



North Fork Pit River Watermaster Service Area

The North Fork Pit River service area lies along the west slopes of the Warner Mountains in northeastern Modoc County and extends from the Oregon border about 45 miles southward to a point just south of Alturas. There are 92 water right owners in the area with total allotments of 214.655 cubic feet per second.

A number of small independent stream systems, rising on the west slope of the Warner Mountains and generally following a westerly direction, comprise the major source of water supply. Three of these streams, New Pine Creek, Cottonwood Creek, and Davis Creek, are tributary to Goose Lake. All other streams in the service area are tributary to the North Fork Pit River. They are: Linville Creek, Franklin Creek, Joseph Creek, Thoms Creek, and Parker Creek. The North Fork Pit River flows in a southerly direction from the south rim of Goose Lake to its confluence with the South Fork Pit River immediately below Alturas. Streams tributary to Goose Lake do not contribute directly to the flow of the North Fork Pit River, since the lake has not spilled into the river for nearly 100 years.

The place of use in the northern half of the area lies in a relatively long, narrow, sloping strip extending between the eastern shore of Goose Lake and the foothills of the Warner Mountains. The places of use in the southern half of the area, which are supplied from the North Fork Pit River and its tributaries, are primarily in the narrow valleys bordering the streams.

A schematic drawing of each major stream system within the North Fork Pit River service area is presented as Figures 13 through 13k, pages 74 through 85.

Water Supply

The streams which serve the area are fed by snowmelt runoff and springs in the Warner Mountains. A large portion of the runoff occurs early in the spring, decreasing rapidly in May and June. The watershed of New Pine Creek, however, is at a higher elevation and maintains a good supply well into the summer. After the snowpack is depleted, perennial springs at the headwaters of the tributaries are the main sources of water supply. Linville Creek, with its small drainage basin, depends almost entirely on springs at its head. Gleason Creek, Thoms Creek, and Cottonwood Creek are usually dry in August, except during years of above-average water supply.

Some supplemental water is stored in small reservoirs throughout the area, none of which are operated by the water-master. However, the inflows to some of these reservoirs are under the water-master's jurisdiction.

Records of daily mean discharge at several stream gaging stations in the North Fork Pit River service area are presented in Tables 20 through 30, pages 68 through 73.

Methods of Distribution

Irrigation is accomplished primarily by wild flooding from field ditches located along high spots in the meadows. Various types of diversion structures are used to divert the natural streamflow into small earth ditches which convey it to the meadows. At present there is a limited amount of sprinkler irrigation, some by naturally developed pressure and some by direct pumping from small sumps in the ditches. Subirrigation by the use of large flashboard dams to raise the water level in the stream channel is being practiced on the North

Fork Pit River between Parker Creek and Alturas. The several decrees (see Table 1) which apply to the North Fork Pit River service area establish the following number of priority classes for the various stream systems: New Pine Creek - four; Cottonwood Creek - six; Davis Creek - four; Linville Creek - two; Franklin Creek - four; Joseph Creek - four; Thoms Creek - three; Parker Creek - four; Shields Creek - four; Gleason Creek - five; and North Fork Pit River - five.

1969 Distribution

Watermaster service began April 20 in the North Fork Pit River service area and continued until September 30. Charles H. Holmes, Assistant Civil Engineer, was watermaster during this period.

The available water supply during the spring months was excellent throughout the service area. Because of a very warm summer, however, streamflows during the latter part of the season were at or near average conditions.

New Pine Creek. Surplus water was available to New Pine Creek water right owners throughout the period that the proration or correlative system of distribution was in effect (until June 30). Commencing July 1, in accordance with provisions of the decree, distribution was based on the priority system (four priorities). Fourth priority allotments were satisfied until August 7. Thereafter, the flow gradually decreased until approximately 90 percent of second priority allotments were being met at the end of the season.

Cottonwood Creek. A sufficient water supply existed in Cottonwood Creek to satisfy all allotments (six priorities) until late spring. The fourth priority allotments were served until late June. Thereafter, the flow decreased gradually, reaching first priority level on August 1. By the end of the season

the flow had decreased until only about 6 percent of first priority allotments were served.

Davis Creek. The available water supply in Davis Creek was sufficient to satisfy all allotments (four priorities) until June 2. One hundred percent of third priority allotments were served until June 22. The flow then steadily decreased, reaching 100 percent of the second priority allotments on September 1. At the end of the season the flow had receded slightly to 63 percent of second priority allotments.

Linville Creek. The available water supply in Linville Creek decreased steadily from the time watermaster service began until the end of the irrigation season. A small percentage of second priority allotments (two priorities) was supplied from May 10 to May 25. The available supply for first priority allotments ranged between 100 percent on May 25 to 66 percent at the end of the season.

Franklin Creek. The available water supply in Franklin Creek was sufficient to satisfy all allotments (four priorities) from May 8 until May 17. One hundred percent of third priorities were served until May 17. The flow then gradually decreased until mid-September when 16 percent of third priority allotments were being served. On September 15 the winter schedule of priorities became effective. Under this schedule, only 59 percent of second priority allotments were met.

Joseph Creek. A surplus water supply existed in Joseph Creek until June 19. The flow then receded rapidly until on July 25 only first priority allotments (four priorities) were served. Thereafter, the flow gradually decreased to 80 percent of first priority allotments at the end of the season.

Thoms Creek. A sufficient water supply existed in Thoms Creek to meet all

allotments (three priorities) until July 9. The flow then gradually decreased to 18 percent of third priority allotments at the end of the season.

Gleason Creek. The available water supply in Gleason Creek was sufficient to satisfy fourth priority allotments (five priorities) until May 4. The flow then rapidly dropped to 100 percent of second priority allotments by May 28. By July 24 the creek was dry.

Shields Creek. A surplus water supply existed in Shields Creek until mid-June. The flow decreased rapidly until approximately 65 percent of second priority allotments (four priorities) were served on August 8. The supply then gradually decreased until the end of September when 25 percent of second priority

allotments were being supplied.

Parker Creek. The flow in Parker Creek peaked in mid-May and continued to serve 100 percent of all allotments (four priorities) until mid-June. From then until late September the flow continued to decrease gradually. At that time about 30 percent of third priority allotments were served.

North Fork Pit River. A surplus water supply existed in the North Fork Pit River until June 15. On that date the Dorris Reservoir allotments was reduced. The flow then decreased rapidly until June 19 when only first priority allotments (five priorities) were being served. The decrease continued until July 9 when only stockwater was available. This condition continued throughout the remainder of the season.

NORTH FORK PIT RIVER WATERMASTER SERVICE AREA

1969 Daily Mean Discharge in Cubic Feet Per Second

TABLE 20
NEW PINE CREEK BELOW SCHROEDER'S

1	Day : March	: April :	_May_:	June :	July	: August :	September	: Day
3	1		54	28	14	8.8	6.9	1
\$\frac{4}{5}\$ \$\frac{38*}{39}\$ \$\frac{48}{49}\$ \$\frac{25}{25}\$ \$\frac{13}{13}\$ \$\frac{8.3}{8.3}\$ \$\frac{6.8}{6.8}\$ \$\frac{5}{5}\$ \$\frac{6}{7}\$ \$\frac{36}{36}\$ \$\frac{58}{71}\$ \$\frac{24}{24}\$ \$\frac{12}{12}\$ \$\frac{8.0}{8.0}\$ \$\frac{6.5}{6.5}\$ \$\frac{7}{7}\$ \$\frac{8}{8}\$ \$\frac{35}{35}\$ \$\frac{75}{75}\$ \$\frac{24}{24}\$ \$\frac{12}{12}\$ \$\frac{8.0}{8.0}\$ \$\frac{6.5}{6.5}\$ \$\frac{9}{9}\$ \$\frac{36}{10}\$ \$\frac{89}{36}\$ \$\frac{89}{89}\$ \$\frac{23}{23}\$ \$\frac{12}{7.9}\$ \$\frac{6.5}{6.3}\$ \$\frac{10}{10}\$ \$\frac{11}{37}\$ \$\frac{7}{6}\$ \$\frac{23}{23}\$ \$\frac{12}{12}\$ \$\frac{7.8}{7.8}\$ \$\frac{6.5}{6.3}\$ \$\frac{11}{10}\$ \$\frac{11}{10}\$ \$\frac{39}{37}\$ \$\frac{71}{10}\$ \$\frac{22}{11}\$ \$\frac{7.8}{15}\$ \$\frac{6.5}{6.3}\$ \$\frac{11}{12}\$ \$\frac{11}{10}\$ \$\frac{7.8}{8}\$ \$\frac{6.3}{6.3}\$ \$\frac{11}{14}\$ \$\frac{11}{40}\$ \$\frac{40}{42}\$ \$\frac{22}{22}\$ \$\frac{11}{11}\$ \$\frac{7.8}{7.8}\$ \$\frac{6.3}{6.3}\$ \$\frac{11}{14}\$ \$\frac{17}{40}\$ \$\frac{40}{42}\$ \$\frac{22}{22}\$ \$\frac{11}{11}\$ \$\frac{7.8}{7.8}\$ \$\frac{6.3}{6.3}\$ \$\frac{13}{14}\$ \$\frac{15}{10}\$ \$\frac{39}{39}\$ \$\frac{34}{40}\$ \$\frac{20}{22}\$ \$\frac{10}{10}\$ \$\frac{7.8}{7.8}\$ \$\frac{6.3}{6.3}\$ \$\frac{11}{16}\$ \$\frac{17}{10}\$ \$\frac{7.6}{6.6}\$ \$\frac{6.0}{6.0}\$ \$\frac{17}{17}\$ \$\frac{10}{10}\$ \$\frac{7.6}{6.6}\$ \$\frac{6.0}{6.0}\$ \$\frac{17}{18}\$ \$\frac{1}{10}\$ \$\frac{7.4}{6.3}\$ \$\frac{6.3}{3}\$ \$\frac{19}{19}\$ \$\frac{20}{53}\$ \$\frac{39}{39}\$ \$\frac{18}{18}\$ \$\frac{10}{10}\$ \$\frac{7.6}{6.6}\$ \$\frac{6.0}{6.0}\$ \$\frac{22}{22}\$ \$\frac{23}{11}\$ \$\frac{7.6}{10}\$ \$\frac{6.0}{6.0}\$ \$\frac{22}{22}\$ \$\frac{23}{11}\$ \$\frac{7.0}{10}\$ \$\frac{6.0}{6.0}\$ \$\frac{22}{22}\$ \$\frac{25}{52}\$ \$\frac{30}{30}\$ \$\frac{16}{10}\$ \$\frac{7.0}{10}\$ \$\frac{6.0}{6.0}\$ \$\frac{22}{23}\$ \$\frac{26}{46}\$ \$\frac{27}{15}\$ \$\frac{9.4}{9.0}\$ \$\frac{7.0}{10}\$ \$\frac{6.0}{6.0}\$ \$\frac{29}{29}\$ \$\frac{38}{58}\$ \$\frac{28}{15}\$ \$\frac{9.4}{9.0}\$ \$\frac{7.0}{10}\$ \$\frac{6.0}{6.0}\$ \$\frac{29}{28}\$ \$\frac{3}{30}\$ \$\frac{57}{26}\$ \$\frac{14}{9.0}\$ \$\frac{9.0}{7.0}\$ \$\frac{6.0}{6.0}\$ \$\frac{29}{30}\$ \$\frac{3}{30}\$ \$\frac{37}{5}\$ \$\fra	2		53	25	13	8.5	6.8	2
5 39 49 25 13 8.3 6.8 5 6 36 58 24 12 8.1 6.5 6 7 36 71 24 12 8.0 6.5 7 8 35 75 24 12 8.0 6.5 8 9 36 89 23 12 7.9 6.5 9 10 37 76 23 12 7.9 6.3 10 11 39 71 22 12 7.8 6.3 11 12 40 58 22 11 7.8 6.5 12 13 41 49 22 11 7.8 6.3 13 14 40 40 20 10 7.8 6.3 13 14 40 40 20 10 7.8 6.3 15 16 39 34 20 10 7.8 6.3 15 16 39 34 20 10 7.8 6.3 15 17 40 40 40 19 10 7.6 6.0 17 18 42 41 19 10 7.6 6.0 17 18 48 40 18 10 7.6 6.0 17 18 48 40 18 10 7.6 6.3 19 20 53 39 18 10 7.4 6.3 20 21 58 38 17 10 7.1 6.0 22 23 67 36 17 10 7.0 6.0 22 23 67 36 17 10 7.0 6.0 23 24 57 33 16 10 7.0 6.0 23 24 57 33 16 10 7.0 6.0 22 25 26 47 28 15 9.4 7.0 6.0 25 26 47 28 15 9.4 7.0 6.0 25 26 47 28 15 9.4 7.0 6.0 25 26 47 28 15 9.4 7.0 6.0 25 26 47 28 15 9.4 7.0 6.0 25 27 46 28 16 9.3 7.0 6.0 25 28 29 58 28 15 9.1 7.0 6.0 29 30 57 26 14 9.0 7.0 6.0 29 31 4000 17 18 4000 17 18 400 19 10 7.0 6.0 29 30 57 26 14 9.0 7.0 6.0 29 31 400 7.0 6.0 29 31 400 7.0 6.0 29 31 400 7.0 6.0 29 31 400 7.0 6.0 29 31 400 7.0 6.0 29 31 400 7.0 6.0 29 31 400 7.0 6.0 29 31 400 7.0 6.0 29 31 400 7.0 6.0 29 31 400 7.0 6.0 29 31 400 7.0 6.0 29 31 400 7.0 6.0 29 31 400 7.0 6.0 29 31 400 7.0 6.0 29 31 400 7.0 6.0 29 31 400 7.0 6.0 29 31 400 7.0 6.0 29 31 400 7.0 6.0 29	4	38*			13	8.5	6.8	3
6 36 58 24 12 8.1 6.5 6 7 36 71 24 12 8.0 6.5 7 8 35 75 24 12 8.0 6.5 8 9 36 89 23 12 7.9 6.5 9 10 37 76 23 12 7.9 6.3 10 11 39 71 22 12 7.8 6.3 11 12 40 58 22 11 7.8 6.5 12 13 41 49 22 11 7.8 6.3 13 14 40 40 20 11 7.8 6.3 13 14 40 40 20 10 7.8 6.3 15 15 39 40 20 10 7.8 6.3 15 16 39 34 20 10 7.8 6.3 15 17 40 40 19 10 7.6 6.0 17 18 42 41 19 10 7.6 6.0 17 18 42 41 19 10 7.6 6.0 17 18 48 40 18 10 7.6 6.3 19 20 53 39 18 10 7.4 6.3 20 21 58 38 17 10 7.1 6.0 21 22 23 67 36 17 10 7.1 6.0 22 23 67 36 17 10 7.1 6.0 22 23 67 36 17 10 7.0 6.0 23 24 57 33 16 10 7.0 6.0 23 24 57 33 16 10 7.0 6.0 23 24 57 33 16 10 7.0 6.0 22 25 26 47 28 15 9.0 7.0 6.0 25 26 47 28 15 9.1 7.0 6.0 25 26 47 28 15 9.1 7.0 6.0 25 27 46 28 16 9.3 7.0 6.0 25 28 29 58 28 15 9.0 7.0 6.0 29 30 57 26 14 9.0 7.0 6.0 29 30 57 26 14 9.0 7.0 6.0 29 30 57 26 14 9.0 7.0 6.0 29 30 57 26 14 9.0 7.0 6.0 29 30 57 26 14 9.0 7.0 6.0 29 30 57 26 14 9.0 7.0 6.0 29 30 57 26 14 9.0 7.0 6.0 29 30 57 26 14 9.0 7.0 6.0 29 30 57 26 14 9.0 7.0 6.0 29 30 57 26 14 9.0 7.0 6.0 29 30 57 26 14 9.0 7.0 6.0 29 30 57 26 14 9.0 7.0 6.0 29 30 57 26 14 9.0 7.0 6.0 29 30 57 26 14 9.0 7.0 6.0 29 30 57 26 14 9.0 7.0 6.0 29 30 57 26 14 9.0 7.0 6.0 29 30 57 26 14 9.0 7.0 6.0 29 30 57 26 14 9.0 7.0 6.0 29 30 57 26 14 9.0 7.0 6.0 29	5			25	13	8.3	6.8	5
11	6	36			12	8.1		
11	7	36			12	8.0	6.5	7
11	9	35 36		24	12	8.U	6.5 6.5	8
11		37	76	23		7.9	6.3	10
13		39		22	12	7.8		11
16	12		58	22		7.8	6.5	12
16			49	22		7.8	b.3	13
16	15			20		7.8	6.3	15
17	16	39				7.8	6.3	16
19						7.6	6.0	17
20 53 39 18 10 7.4 6.3 20 21 58 38 17 10 7.1 6.0 21 22 67 38 17 10 7.1 6.0 22 23 67 36 17 10 7.0 6.0 23 24 57 33 16 10 7.0 6.0 23 24 57 33 16 10 7.0 6.0 25 25 52 30 16 10 7.0 6.0 25 26 47 28 15 9.4 7.0 6.0 25 27 46 28 16 9.3 7.0 6.0 27 28 46 27 15 9.1 7.0 6.0 27 28 46 27 15 9.1 7.0 6.0 27 28 46 27 15 9.1 7.0 6.0 28 29 58 28 15 9.0 7.0 6.0 28 29 58 28 15 9.0 7.0 6.0 29 30 57 26 14 9.0 7.0 6.0 29 31 26 88 6.9 31 Mean 45.7 45.8 20.1 10.6 7.6 6.3 Mean Runoff In Acre-Feet	1 8 1 0	42				7.6	6.0	18
21 58 38 17 10 7.1 6.0 21 22 67 38 17 10 7.1 6.0 22 23 67 36 17 10 7.0 6.0 23 24 57 33 16 10 7.0 6.0 24 25 52 30 16 10 7.0 6.0 25 26 47 28 15 9.4 7.0 6.0 25 26 47 28 15 9.4 7.0 6.0 25 27 46 28 16 9.3 7.0 6.0 27 28 46 27 15 9.1 7.0 6.0 27 28 46 27 15 9.1 7.0 6.0 27 28 46 27 15 9.1 7.0 6.0 28 29 58 28 15 9.0 7.0 6.0 28 29 58 28 15 9.0 7.0 6.0 29 30 57 26 14 9.0 7.0 6.0 29 31 26 8.8 6.9 31 Mean 45.7 45.6 20.1 10.6 7.6 6.3 Mean Runoff In Acre-Feet	20	53		18			6.3	20
22 67 38 17 10 7.1 6.0 22 23 67 36 17 10 7.0 6.0 23 24 57 33 16 10 7.0 6.0 24 25 52 30 16 10 7.0 6.0 25 26 47 28 15 9.4 7.0 6.0 25 27 46 28 16 9.3 7.0 6.0 27 28 46 27 15 9.1 7.0 6.0 27 28 46 27 15 9.1 7.0 6.0 28 29 58 28 15 9.0 7.0 6.0 28 29 58 28 15 9.0 7.0 6.0 28 30 57 26 14 9.0 7.0 6.0 29 31 26 88 6.9 31 Mean 45.7 45.8 20.1 10.8 7.6 6.3 Mean Runoff In Acre-Feet	21	58	38	17	10	7.1		
26 47 28 15 9.4 7.0 6.0 26 27 46 28 16 9.3 7.0 6.0 27 28 46 27 15 9.1 7.0 6.0 28 29 58 28 15 9.0 7.0 6.0 29 30 57 26 14 9.0 7.0 6.0 30 31 26 8.8 6.9 31 Mean 45.7 45.8 20.1 10.6 7.6 6.3 Mean Runoff In Acre-Feet 2450 2810 1190 666 469 375 Acre-Feet	22	67	38					22
26 47 28 15 9.4 7.0 6.0 26 27 46 28 16 9.3 7.0 6.0 27 28 46 27 15 9.1 7.0 6.0 28 29 58 28 15 9.0 7.0 6.0 29 30 57 26 14 9.0 7.0 6.0 30 31 26 8.8 6.9 31 Mean 45.7 45.8 20.1 10.6 7.6 6.3 Mean Runoff In Acre-Feet 2450 2810 1190 666 469 375 Acre-Feet	23		36					23
26 47 28 15 9.4 7.0 6.0 26 27 46 28 16 9.3 7.0 6.0 27 28 46 27 15 9.1 7.0 6.0 28 29 58 28 15 9.0 7.0 6.0 29 30 57 26 14 9.0 7.0 6.0 30 31 26 8.8 6.9 31 Mean 45.7 45.8 20.1 10.6 7.6 6.3 Mean Runoff In Acre-Feet 2450 2810 1190 666 469 375 Acre-Feet	25	57 52	33 30					24 25
31 26 8.8 6.9 31 Mean 45.7 45.8 20.1 10.8 7.6 6.3 Mean Runoff In Acre-Feet 2450 2810 1190 666 469 375 Acre-Feet								
31 26 8.8 6.9 31 Mean 45.7 45.8 20.1 10.8 7.6 6.3 Mean Runoff In Acre-Feet 2450 2810 1190 666 469 375 Acre-Feet	27			16	9.3		6.0	27
31 26 8.8 6.9 31 Mean 45.7 45.8 20.1 10.8 7.6 6.3 Mean Runoff In Acre-Feet 2450 2810 1190 666 469 375 Acre-Feet	28	46		15	9.1		6.0	28
31 26 8.8 6.9 31 Mean 45.7 45.8 20.1 10.8 7.6 6.3 Mean Runoff In Acre-Feet 2450 2810 1190 666 469 375 Acre-Feet	29	58	28				6.0	29
Mean 45.7 45.8 20.1 10.8 7.6 6.3 Mean Runoff In Acre-Feet 2450 2810 1190 666 469 375 Acre-Feet	31	37		14			0.0	31
Runoff In Acre-Feet 2450 2810 1190 666 469 375 Acre-Feet	Mean	45.7	45.8	20.1		7.6	6.3	Mean
	Runoff In	2450	2010	1100	000	460	276	Runoffin
			2810	1190	000	409	3/3	ACIEFFEEL

^{*} Beginning of Record

TABLE 21
COTTONWOOD CREEK BELOW LARKIN GARDEN DITCH

Oay : March : Apri	l : May :	June	: July :	August	: September	: Day
1 2 3 4 5		4.8 4.5 4.0 4.0 3.9	1.1 1.1 1.1 1.0 1.0	0.4 0.4 0.4 0.4 0.4	0.4 0.4 0.4 0.4	1 2 3 4 5
6 7 8 9		3.7 3.5 3.2 3.0 2.7	1.0 1.0 1.0 0.9	0.3 0.3 0.3 0.3 0.3	0.4 0.4 0.4 0.4 0.4	1 2 3 4 5 6 7 8 9
11 12 13 14 15		2.5 2.3 2.1 2.0 1.9	0.8 0.8 0.8 0.8	0.4 0.4 0.4 0.4	0.4 0.4 0.4 0.3	11 12 13 14 15
16 17 18 19 20		1.7 1.6 1.5 1.4 1.3	0.8 0.8 0.7 0.7	0.4 0.4 0.4 0.5	0.3 0.3 0.3 0.3 0.3	16 17 18 19 20
21 22 23 24 25	6.8 [#] 6.8 7.1	1.2 1.2 1.2 1.1	0.7 0.6 0.6 0.6 0.5	0.5 0.5 0.5 0.5	0.3 0.3 0.3 0.3 0.2	21 · 22 23 24 25
26 27 28 29 30 31	7.1 6.8 5.8 5.1 4.5 4.8	1.1 1.1 1.1 1.1	0.5 0.4 0.4 0.4 0.4	0.5 0.5 0.5 0.5 0.5	0.2 0.2 0.2 0.2 0.2	26 27 28 29 30 31
Mean Runoff In Acre-Feet	109	133	46	26	0.3 19	Runoff In Acre-Feet

^{* 8}eginning of Record

NORTH FORK PIT RIVER WATERMASTER SERVICE AREA 1969 Daily Mean Oischarge in Cubic Feet Per Second

TABLE 22 DAVIS CREEK AT OLD FISH WHEEL

Day : March 1 2 3 4 5	47* 47 51	May : 51 50 51 50 50	June : 43 42 40 39 35	July 14 14 14 16 16	: August : 7.2 7.5 7.5 7.5	September 4.8 4.8 4.0 4.8 5.0	: <u>0 ay</u> 1 2 3 4 5
6 7 8 9	47 43 37 33 33	54 54 59 75 76	29 29 39 39 30	16 17 17 16 15	8.3 8.3 7.5 7.5 7.2	5.0 5.3 4.8 4.8 4.8	6 7 8 9 10
11 12 13 14 15	35 38 40 41 40	80 74 75 77 69	29 25 24 24 23	14 13 13 12	7.5 7.5 7.2 7.0 6.3	6.3 7.5 7.5 7.0 6.0	11 12 13 14 15
16 17 18 19 20	34 38 41 40 44	68 68 68 70 62	21 20 20 21 21	10 9.6 9.0 8.5 8.5	6.3 6.0 6.3 6.3	5.3 5.3 6.0 4.8 4.8	16 17 18 19 20
21 22 23 24 25	51 60 78 64 56	62 58 58 59 58	20 20 22 19 19	8.5 8.5 8.5 8.5	4.8 4.8 4.8 6.3	4.8 4.8 4.8 4.8	21 22 23 24 25
26 27 28 29 30 31	49 47 46 49 50	55 52 48 46 44	18 18 17 17 15	8.5 8.3 8.3 7.5 7.0	5.3 5.0 6.3 5.3 5.0 4.8	3.9 3.9 3.9 3.9	26 27 28 29 30 31
Runoff In Acre-Feet	2540	3700	1540	700	393	302	Mean Runoff In Acre-Feet

^{*} Beginning of Record

TABLE 23
LINVILLE CREEK AT OLO POWER HOUSE

		FIMAILLE	CHEEK AT OF	U FUNER	nuuse		
<u> Oay</u> : <u>I</u>	March : April :	May	June :	July	: August :	September	: Day
1 2 3 4 5	1.8* 1.8	1.9 1.8 1.8 1.8	3.4 3.3 3.3 3.2 3.2	3.0 3.0 3.0 2.9 2.9	2.6 2.6 2.6 2.6 2.6	2.6 2.6 2.6 2.6 2.6	1 2 3 4 5
6 7 8 9 10	1.8 1.8 1.8 1.8	1.8 2.0 2.6 3.3 4.0	3.2 3.5 3.6 3.4	2.9 2.8 2.8 2.7 2.7	2.5 2.5 2.5 2.5 2.4	2.6 2.6 2.6 2.6 2.6	6 7 8 9 10
11 12 13 14 15	1.8 1.8 1.8 1.8	4.7 4.8 4.7 4.7 4.5	3.3 3.3 3.2 3.2 3.2	2.6 2.6 2.6 2.6 2.6	2.4 2.4 2.4 2.4 2.4	2.6 2.6 2.6 2.6 2.6	11 12 13 14 15
16 17 18 19 20	1.8 1.8 1.9 1.8	4.5 4.4 4.4 4.2	3.2 3.1 3.1 3.3 3.2	2.6 2.6 2.6 2.6 2.7	2.5 2.5 2.5 2.5 2.5	2.6 2.6 2.6 2.6 2.6	16 17 18 19 20
21 22 23 24 25	1.8 1.9 2.1 2.1 2.0	4.1 4.1 4.0 4.0 4.0	3.2 3.1 3.2 3.1 3.1	2.7 2.6 2.6 2.6 2.6	2.5 2.6 2.6 2.6 2.6	2.6 2.6 2.6 2.6 2.6	21 22 23 24 25
26 27 28 29 30 31	1.9 1.8 1.8 1.9	3.9 3.8 3.7 3.6 3.5	3.1 3.1 3.1 3.1 3.1	2.6 2.6 2.6 2.6 2.6 2.6	2.6 2.6 2.6 2.6 2.6 2.6	2.6 2.6 2.6 2.6 2.6	26 27 28 29 30 31
Rünoff In Acre-Feet	99	222	192	166	156	155	Runoff In Acre-Feet

^{* 8}eginning of Record

NORTH FORK PIT RIVER WATERMASTER SERVICE AREA 1969 Daily Mean Discharge in Cubic Feet Per Second

TABLE 24
FRANKLIN CREEK ABOVE DIVERSIONS

Day : Mai	rch : April :	May:	Juna :	July :	August :	September	. Day
1 2 3 4 5	6.2*	8.0 7.3 7.2 6.8 6.8	5.8 5.5 4.4 5.2 5.3	3.6 3.5 3.5 3.5 3.5	3.0 2.8 2.8 2.8 2.8	2.2 2.1 2.0 2.1 2.2	1 2 3 4 5
6 7 8 9	5.6 5.1 5.1 5.5 6.2	7.5 11 19 19 20	5.3 5.1 5.1 5.1 5.1	3.4 3.4 3.3 3.3	2.8 2.8 3.0 3.0	2.2 2.1 2.1 2.1 2.1	6 7 8 9 10
11 12 13 14	6.2 6.0 5.6 6.5 6.5	21 20 19 20 18	5.1 5.0 4.9 4.8 4.7	3.2 3.1 3.1 3.1 3.1	3.0 3.0 3.0 2.6 2.5	2.1 2.1 2.0 1.9	11 12 13 14 15
16 17 18 19 20	6.6 6.0 6.1 6.5 7.3	16 13 11 8.0 8.0	4.7 4.7 4.7 4.8 4.6	3.0 3.1 3.1 3.1 3.0	2.7 2.4 2.4 2.4 2.4	1.8 1.8 1.9 1.9	16 17 18 19 20
21 22 23 24 25	9.0 12 12 7.5 6.8	8.0 8.0 7.2 6.7 6.2	4.5 4.0 4.6 4.5 4.5	2.9 2.9 2.9 3.0 3.0	2.4 2.3 2.3 2.3 2.3	1.9 1.9 1.9 1.9	21 22 23 24 25
26 27 28 29 30	6.7 6.5 7.6 7.5 8.0	6.6 6.5 6.4 5.0	4.1 4.0 3.9 3.8 3.6	3.0 3.0 3.0 3.0 3.0	2.3 2.3 2.3 2.3 2.2 2.2	1.8 1.9 1.9 1.9	26 27 28 29 30 31
Mean Runoff In Acre-Feet	358	5.0 10.9 673	280	194	160	117	Mean Runoff In Acre-Feet

^{*} Beginning of Record

TABLE 25
JOSEPH CREEK BELOW COUCH CREEK

		JOSEPH C	REEK BELOW	COUCH CRE	FK		
Day : Ma	rch : April :	May:	June :	July :	August	: September	. <u>Day</u>
1 2 3 4 5	46* 47 47	27 23 22 22 22	17 16 16 16 15	5.5 5.3 5.5 5.5	1.9 1.9 1.8 1.8	1.7 1.7 1.7 1.7 1.7	1 2 3 4 5
6 7 8 9	42 36 32 23 32	18 18 19 34 42	13 12 15 22 17	5.5 5.0 4.7 4.1 3.8	1.8 1.8 1.8 1.8	1.7 1.7 1.7 1.7 1.7	6 7 8 9 10
11 12 13 14 15	34 39 39 39 30	48 48 45 33	15 13 10 11 9.8	3.1 2.9 3.1 3.2 3.1	1.8 1.8 1.8 1.8	1.7 1.7 1.7 1.7 1.7	11 12 13 14 15
16 17 18 19 20	36 39 45 42 42	30 33 33 33 30	9.4 9.2 9.6 9.2 8.5	2.9 2.8 2.3 2.3 2.7	1.8 1.8 1.8 1.8	1.7 1.7 1.7 1.7 2.0	16 17 18 19 20
21 22 23 24 25	48 54 55 49 45	29 26 27 27 27	8.3 8.2 8.7 8.4 8.3	2.6 2.4 2.4 2.4 2.2	1.8 1.8 1.8 1.8	1.9 1.9 1.9 1.9 1.9	21 22 23 24 25
26 27 28 29 30 31	39 33 32 32 30	27 26 24 21 20 18	8.2 - 6.5 6.2 6.0 5.5	2.0 2.0 2.0 2.6 2.2 2.0	1.8 1.8 1.8 1.7	1.9 1.9 1.9 1.9	26 27 28 29 30
Runoff In Acre-Feet	2230	1760	670	206	112	106	Mean Runoff In Acre-Feet

^{* 8}eginning of Record

NORTH FORK PIT RIVER WATERMASTER SERVICE AREA 1969 Daily Mean Discharge in Cubic Feet Per Second

TABLE 26 NORTH FORK PIT RIVER BELOW THOMS CREEK

<u> 0ay</u> : _	March : April :	May:	June :	July	: August :	September	: Oay
1 2 3 4 5	181* 170 180	122 121 118 113 113	57 52 45 42 42	15 16 11 10 14	1.2 1.7 3.5 6.0 6.0	4.0 4.1 11 14 14	1 2 3 4 5
6 7 8 9 10 .	190 180 152 144 140	118 132 135 137 145	52 47 41 51 114	18 15 10 8.0 6.5	6.0 6.0 6.0 6.0	13 12 11 7.0 5.2	6 7 8 9 10
11 12 13 14 15	144 149 148 153 141	152 152 148 144 137	101 67 51 57 66	5.0 4.3 4.0 4.1 3.9	5.2 5.2 5.0 5.0 5.0	5.7 6.5 7.0 7.5 8.0	11 12 13 14 15
16 17 18 19 20	130 138 153 144 149	126 124 125 122 113	40 44 38 48 44	3.5 3.2 3.2 2.5 2.3	5.0 5.0 4.8 4.8 4.8	8.2 9.4 11 12 12	16 17 18 19 20
21 22 23 24 25	159 178 182 182 156	103 100 98 94 90	36 34 38 38 31	2.1 2.0 1.9 1.9	4.5 4.3 4.3 4.1 4.3	13 13 14 16 15	21 22 23 24 25
26 27 28 29 30 31	152 149 146 143 137	88 85 83 75 67 59	28 25 24 22 20	1.8 1.7 1.2 1.0 1.3	4.3 4.3 4.3 4.1 4.0 4.1	1 4 1 4 1 4 1 4	26 27 28 29 30 31
Runoff In Acre-Feet	156 8670	7020	2770	351	287	642	Mēān Rūnoff In Acre-Feet

Beginning of Record

TABLE 27 THOMS CREEK AT CEDARVILLE-ALTURAS HIGHWAY

Day : March	: April :	May	June :	July :	August :	September	: <u>Oay</u>
1		33 30 29 27	9.6	3.0 2.5 2.4 2.2 2.3	0.3	0.0	1
2 3 4 5		30	8.0 8.0	2.5	0.3 0.3	0.0 0.0	2
4		27	7.0	2.2	0.3	0.2	3 4 5
5		27	7.4		0.3	0.2	5
6 7		29	7.0	2.5 2.3 2.2	0.3	0.2	6
7 8	30*	26 31	6.5	2.3	0.3	0.2	6 7 8 9 10
8 9 10	29	33	13	2.0	0.3	0.2	9
10	32	34	10	1.5	0.3	0.3	10
11	35	36	9.6	1.1	0.3	0.3	11
12 13	40 40	3 <i>4</i> 31	7.0 6.5	1.0	0.3	0.3 0.3	11 12 13 14 15
14	39	39	9.6	0.9	0.3	0.3	14
15	32	36	9.3	0.9	0.2	0.3	
16	32	32	6.7	0.8	0.2	0.3	16
17 18	35 38	30 29	9.b 6.D	0.8	0.2	0.3	17 18
19	3 9 45	29 25	9.6 6.0 5.7	0.7	0.2	0.3	18 19 20
20			3.8	0.6	0.1	0.3	
21 22	49 53	24	3.2 2.5 3.6	0.6 0.5 0.5 0.5	0.1	0.4	21
23	49	23 22 21	3.6	0.5	0.0	0.4	22
24 25	39 32	21	3.8	0.5	0.0	0.4	22 23 24 25
		20		0.4	0.0	0.4	
26 27	29 26	20 18	4.2 3.8	0.4	0.0 0.0	0.4 0.4	26 27 28 29
28	31	16	3.7	0.4	0.0	0.4	28
29 30	35	14 12	3.4 3.0	0.4 0.4	0.0	0.4	29
31	34	11	3.0	0.4 0.4	0.0 0.0	0.4	30 31
Runoff In	36.7	26.5	6.5	1.2	Ŏ.Ž	0.3	Mean
Kunott In Acre-Feet	1670	1630	384	72	11	17	Acre-Feet
							noru ruot

Beginning of Record.

NORTH FORK PIT RIVER WATERMASTER SERVICE AREA 1989 Daily Mean Discharge in Cubic Feet Per Second

TABLE 28 PARKER CREEK AT FOGARTY RANCH

Oay:	March : April :	May:	June :	July :	August :	September	: Day
1 2 3 4 5	118* 124 123	113 105 101 100 101	31 28 28 21 16	11 11 11 11	7.8 7.7 7.7 7.6 7.5	6.5 8.5 8.5 8.8 6.8	1 2 3 4 5
6 7 8 9 10	108 105 96 92 92	108 119 129 130 131	14 12 15 18 17	11 11 11 10 10	7.5 7.4. 7.4 7.4 7.3	6.6 6.6 6.6 6.6	6 7 8 8 10
11 12 13 14 15	99 111 106 95 79	139 136 132 125 114	16 14 12 14 13	10 10 9.8 9.5 9.2	7.2 7.1 7.1 7.0 7.0	6.6 6.6 6.6 6.7	11 12 13 14 15
16 17 18 19 20	81 83 106 96 116	110 110 110 106 96	12 12 12 11 12	9.0 8.9 8.7 8.6 8.4	6.9 6.9 6.8 6.8	6.7 6.7**	16 17 18 19 20
21 22 23 24 25	114 114 119 125 113	85 80 79 76 72	11 11 11 11 11	8.4 8.4 8.3 8.3	6.7 6.6 6.6 6.5		21 22 23 24 25
26 27 28 29 30	103 103 114 119 116	67 58 50 45 43 36	11 11 11 11 12	8.2 8.1 8.1 8.0 7.9 7.9	6.5 6.4 6.5 6.5		26 27 28 29 30 31
Runoff In Acre-Feet	5870	5960	871	575	430	222	Mean

^{*} Beginning of Record ** End at Record

TABLE 29 SHIELDS CREEK BELOW PEPPERDINE RANCH

Day : March	: April :	May:	June :	July :	August	: September	: Day
1 2 3 4 5		9.0 8.7 8.4 8.6 8.5	6.2 6.8 7.3 7.0 6.8	4.9 5.1 3.2 4.3 4.4	3.0 2.5 2.4 2.2 2.1	1.9 1.9 1.9 2.1 2.2	1 2 3 4 5
6 7 8 9 10		8.7 8.8 9.1 9.2 9.3	6.7 6.7 7.5 7.8 8.0	4.5 4.2 4.3 4.4 4.3	2.8 2.9 2.9 2.5 2.4	2.2 2.4 2.4 2.4 2.3	6 7 8 9 10
11 12 13 14 15		9.6 9.5 9.4 9.8 9.2	8.3 7.0 6.8 6.7 6.7	4.3 4.2 4.1 4.0 4.0	N 0 R	1.8**	11 12 13 14 15
16 17 18 19 20		9.0 8.9 8.9 8.8 8.3	6.6 6.5 6.4 6.4 8.4	4.0 3.5 3.5 3.6 3.4	R E C O R		16 17 18 19 20
21 22 23 24 25	9.9* 9.6	7.2 7.4 8.2 7.8 7.3	6.2 6.1 6.2 6.2 6.0	3.4 3.3 3.3 3.4 3.3	2.3 2.4 2.3 2.2 2.1		21 22 23 24 25
26 27 28 29 30 31	9.1 9.0 9.2 9.3 9.1	8.9 6.9 7.0 7.6 7.5	5.9 5.7 5.5 5.3 5.1	3.3 2.9 2.7 3.0 3.0 2.9	2.2 2.2 2.3 2.1 2.0		26 27 28 29 30 31
Mean Runoff in Acra-Feet	1 29	516	390	231	99 .	47	Runoff In Acre-Feet

^{*} Beginning at Recard ** End at Record

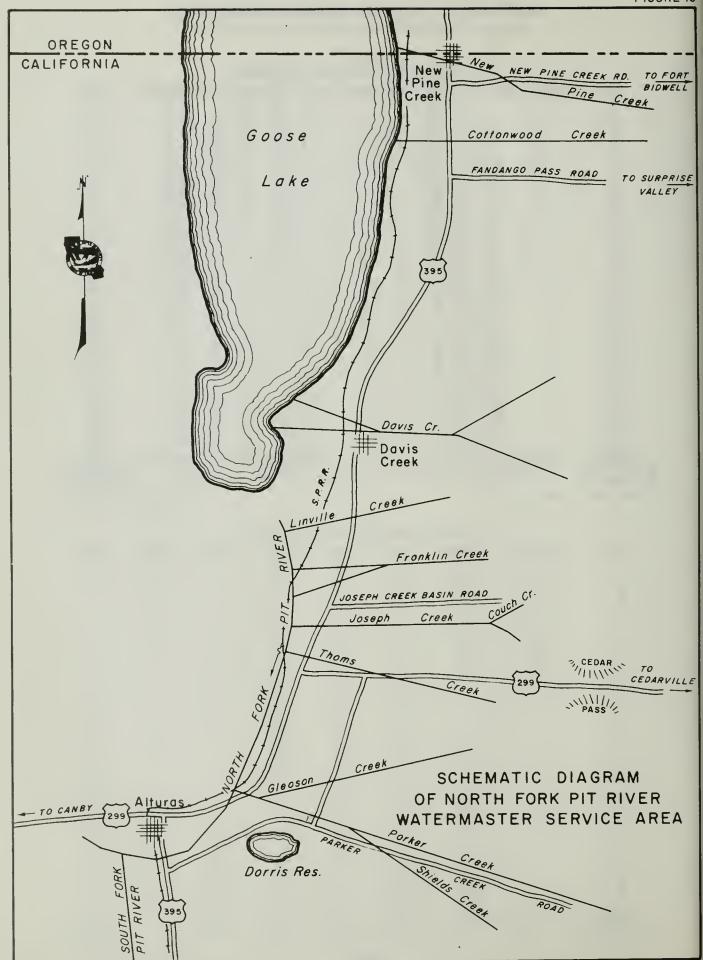
NORTH FORK PIT RIVER WATERMASTER SERVICE AREA

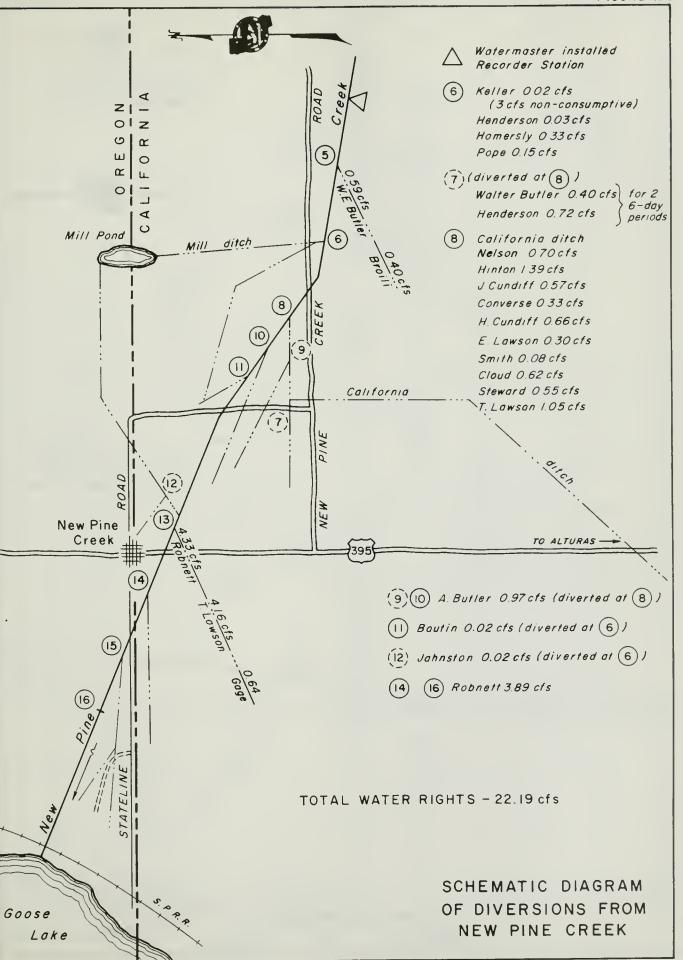
1969 Oaily Mean Oischarge in Cubic Feet Per Second

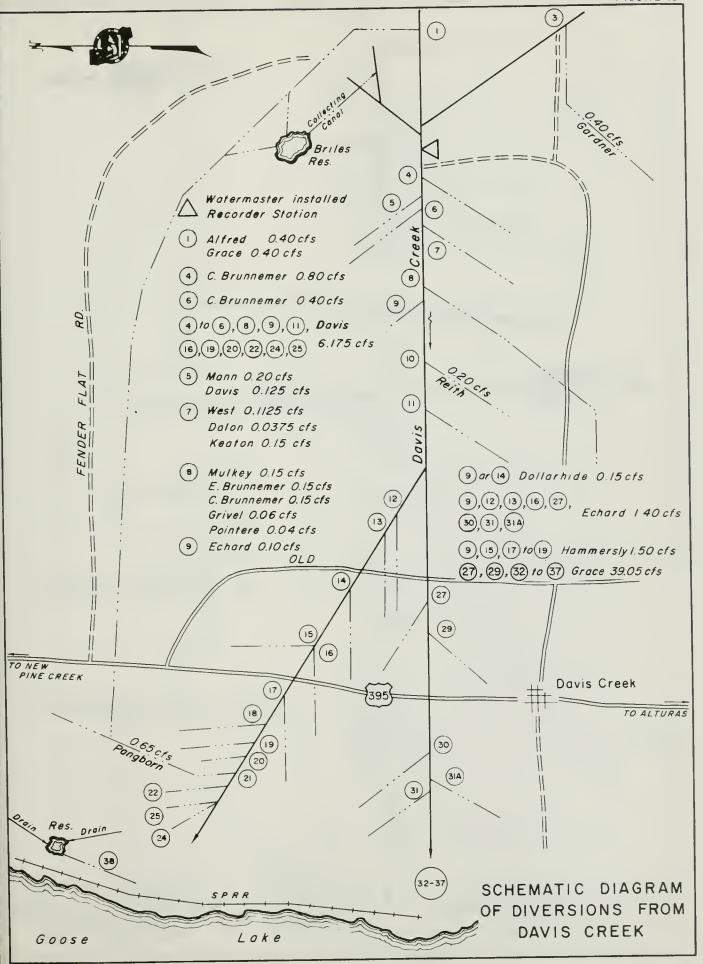
TABLE 30
PARKER CREEK ABOVE HIGHWAY 395 NEAR ALTURAS

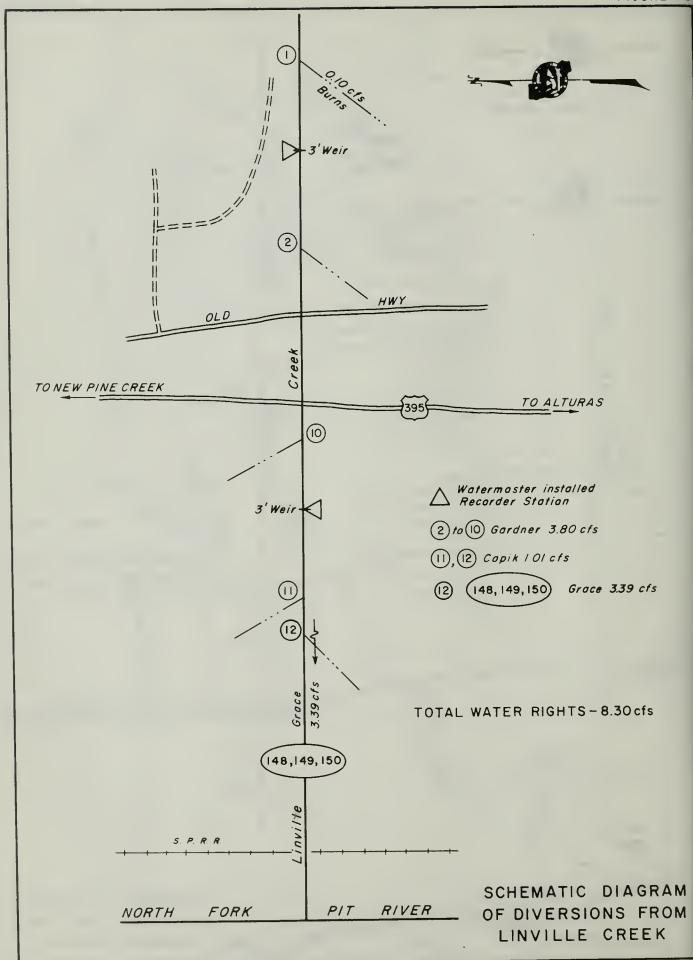
Oay : N	larch : April :	May:	_June_:	July :	August :	September	: 0 ay
1 2 3 4 5	75* 58 57 60	52 47 46 43 39	12 10 6.1 5.5 6.0	3.6 3.5 5.2 5.2 5.4	1.9 1.8 1.8 1.8	0.4 0.4 0.4 0.4 0.5	1 2 3 4 5
6 7 8 9 10	54 48 44 40 41	36 38 39 44 44	4.8 4.0 4.4 11 9.1	6.1 5.8 5.9 5.9	1.9 1.9 1.8 1.8	0.5 0.5 0.5 0.5 0.5	6 7 8 9 10
11 12 13 14 15	47 73 67 65 60	48 50 48 46 42	9.5 6.4 4.2 4.2 4.9	5.2 4.9 4.7 4.6 4.6	1.7 1.7 1.7 1.7	0.6 0.6 0.6 0.6	11 12 13 14 15
16 17 18 19 20	61 66 74 68 77	37 36 35 35 32	4.5 4.3 4.2 4.7 4.6	4.5 4.0 3.9 3.2 2.6	1.8 1.9 1.7 1.7	0.6 0.6 0.6 0.6	16 17 18 19 20
21 22 23 24 25	79 80 78 72 68	28 25 24 23 23	4.6 4.0 4.2 4.2 4.2	2.6 2.6 2.7 2.9 2.8	1.4 1.0 0.8 0.7	0.7 0.7 0.7 0.7 0.7	21 22 23 24 25
26 27 28 29 30 31	57 55 58 60 55	21 18 17 17 15	4.2 4.3 4.4 4.2 3.8	2.8 2.4 2.3 2.2 2.0	0.5 0.4 0.4 0.4 0.4	0.8 0.8 0.8 0.8	26 27 28 29 30 31
Mean Runoff In	61.9	34.3	5.6	3.9	1.4	0.6	Runoff In Acre-Feet
Acre-Feet	3560	2110	330	242	84	36	Acre-Feet

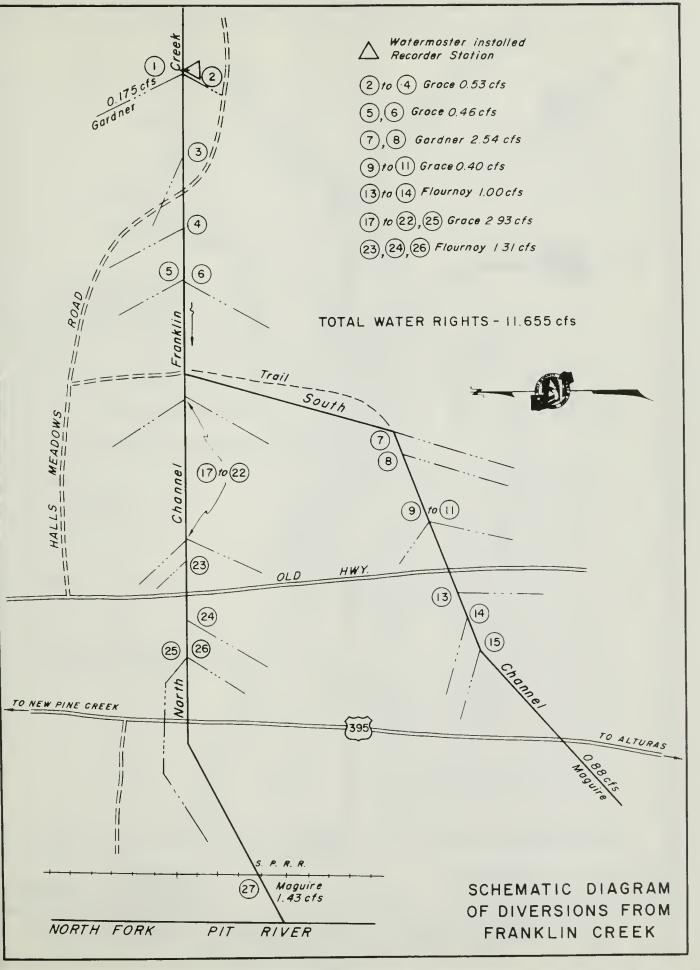
^{*} Beginning of Record

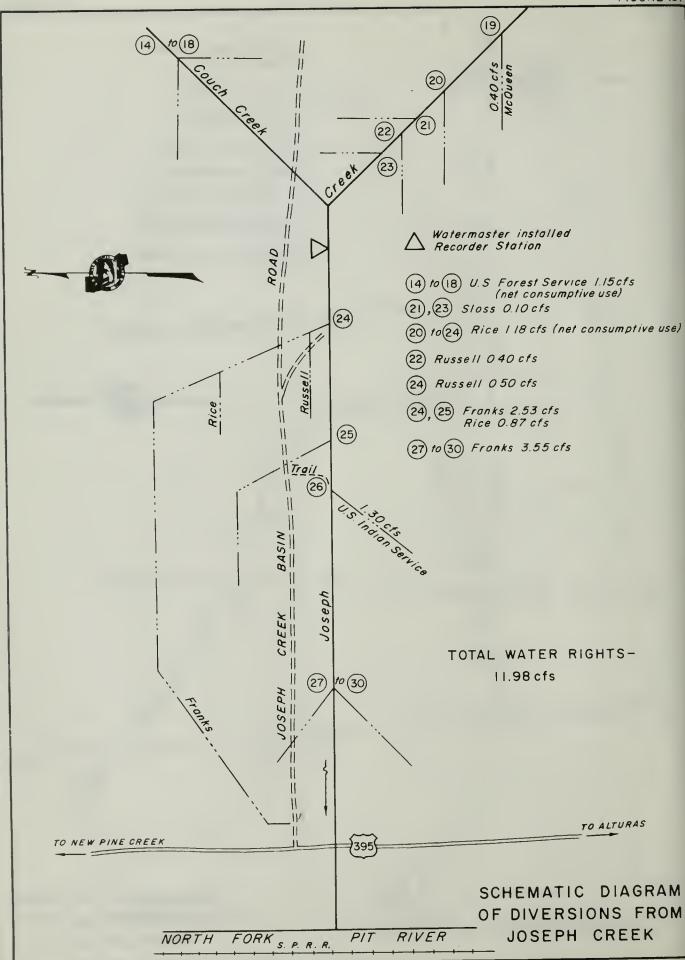


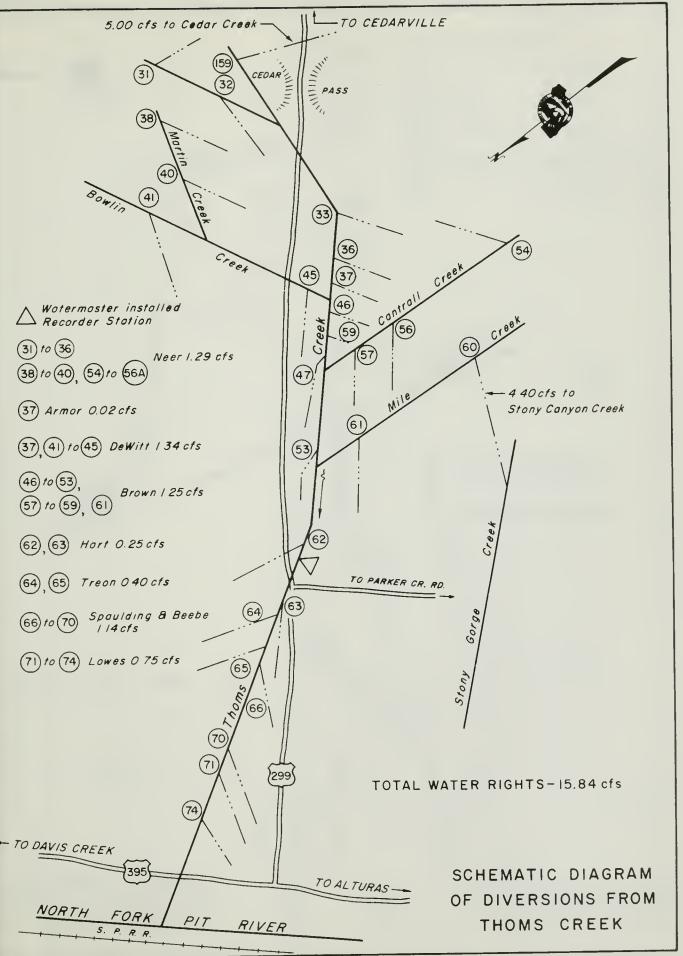


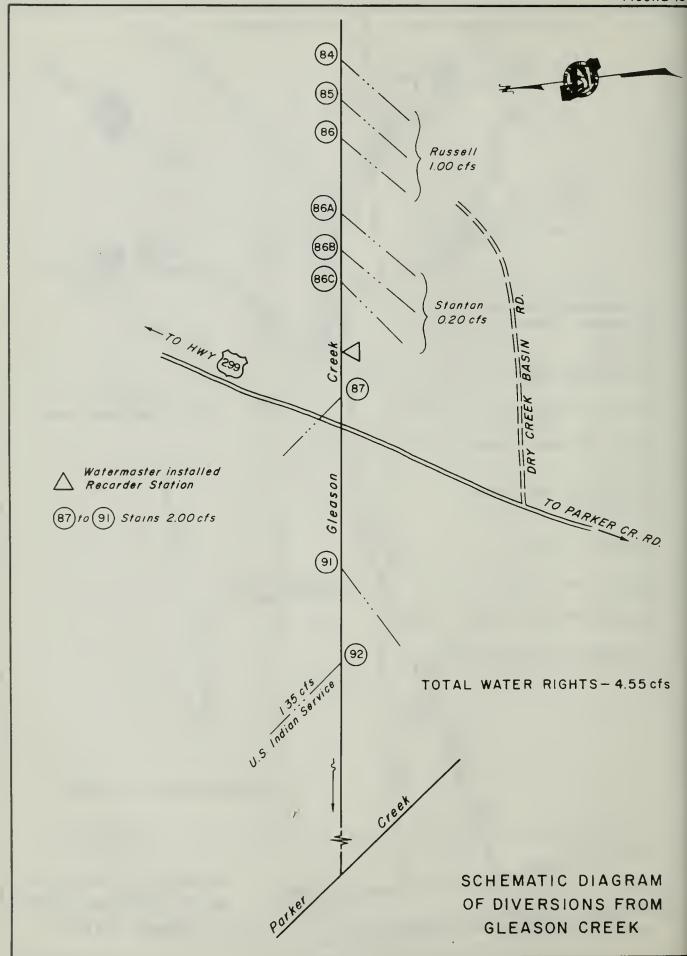


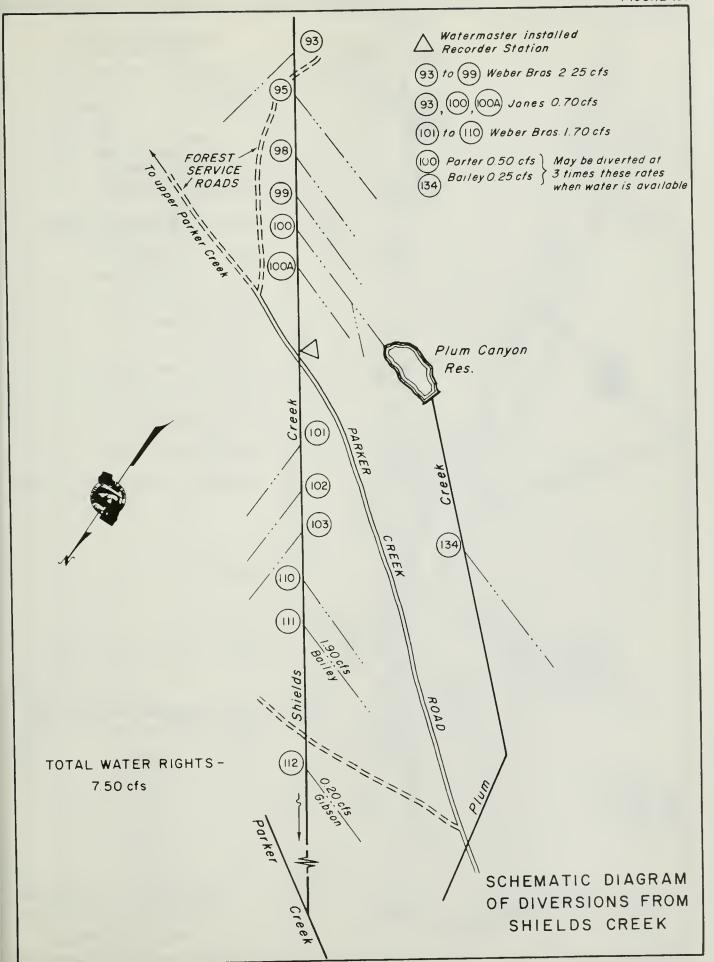


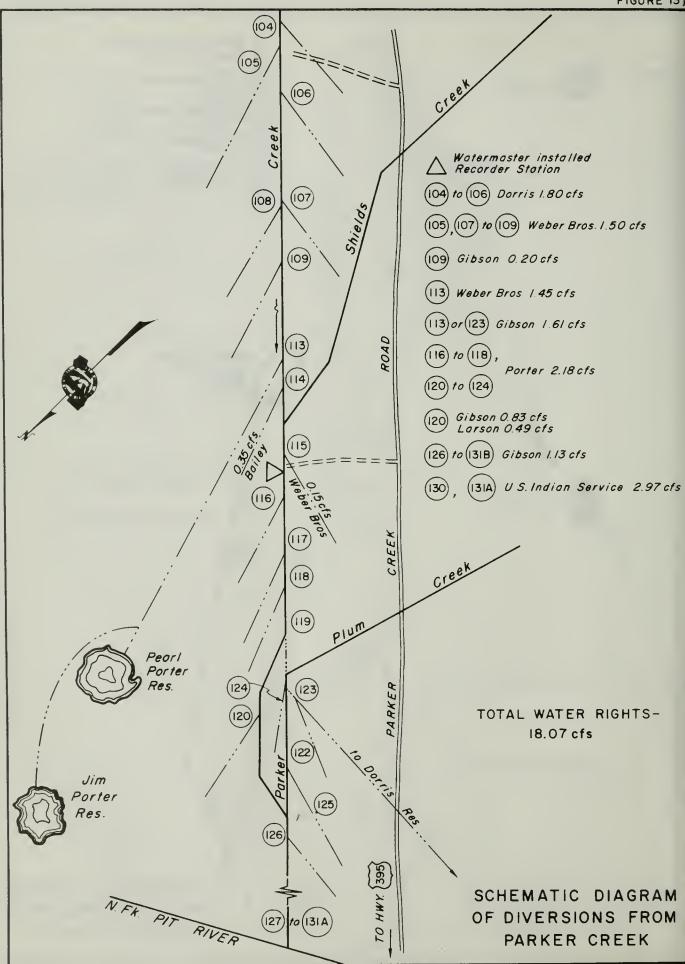


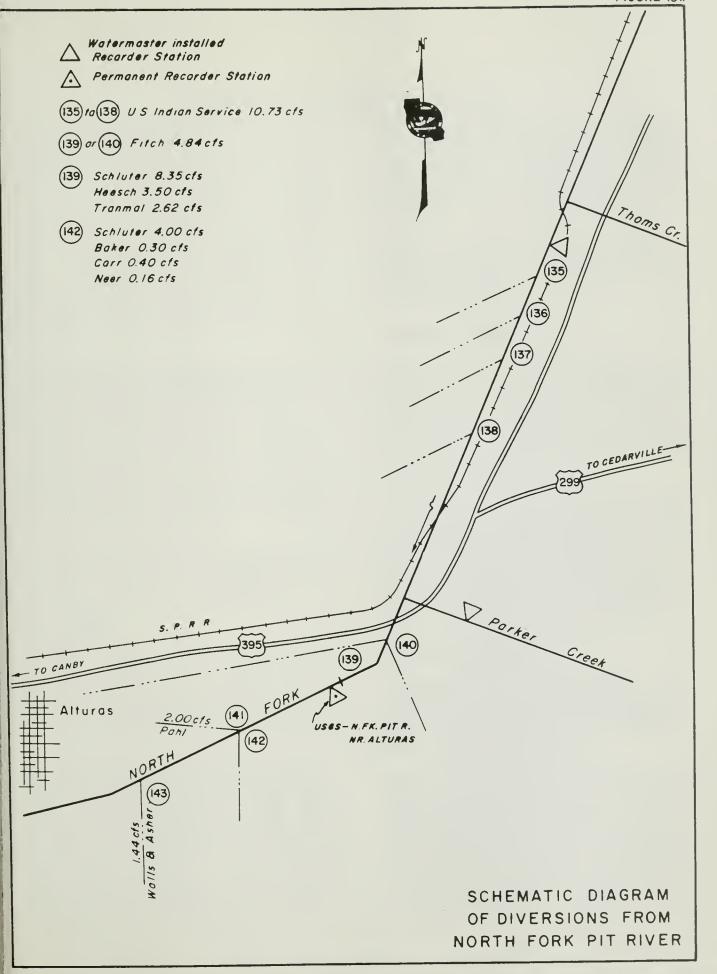


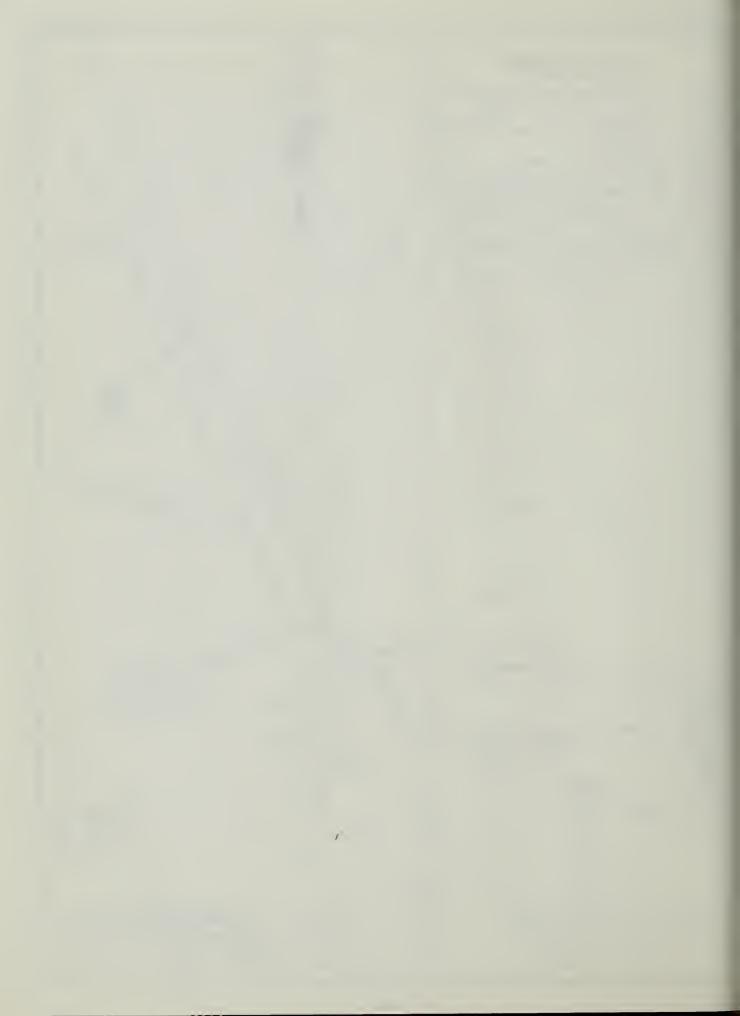












Shackleford Creek Watermaster Service Area

The Shackleford Creek service area is located in western Siskiyou County near the town of Fort Jones in Scott Valley. There are 41 water right owners in the service area with total allotments of 64.73 cubic feet per second. The major sources of water supply for this service area are Shackleford Creek, which flows through the central part of Quartz Valley, and its tributary, Mill Creek, which rises east of the headwaters of Shackleford Creek. Evans Creek, a small tributary to Mill Creek, enters from the south.

The service area encompasses the Quartz Valley region of Scott Valley and includes the entire agricultural area within the Shackleford Creek Basin. It is about two miles wide by six miles long with the main axis and drainage running from south to north. Elevations on the agricultural area range from about 3,100 feet at the south to about 2,650 feet at the confluence of Shackleford Creek and Scott River.

A schematic drawing of the Shackleford Creek stream system is presented as Figures 14 and 14a, pages 88 and 89.

Water Supply

The water supply for Shackleford Creek is derived from snowmelt runoff, springs and seepage, and supplemental stored water released from Cliff Lake and Campbell Lake. These lakes are located near the headwaters of Shackleford Creek.

The watershed of the Shackleford Creek stream system contains about 31 square miles, located in the heavily forested, steep, mountainous terrain of the north-easterly slopes of the Salmon Mountains. It varies in elevation from about 7,000 feet along its west rim to about 3,000 feet at the foot of the slopes bordering Quartz Valley. Snowmelt runoff is normally sufficient to supply all demands

until the middle of July. The supply then usually decreases until the first part of August when water is released from Cliff and Campbell Lakes to maintain sufficient flow for second priority allotments in the Shackleford Ditch.

There were no stream gaging stations operated in the Shackleford Creek service area during 1969. However, several stations were maintained in various diversion ditches.

Method of Distribution

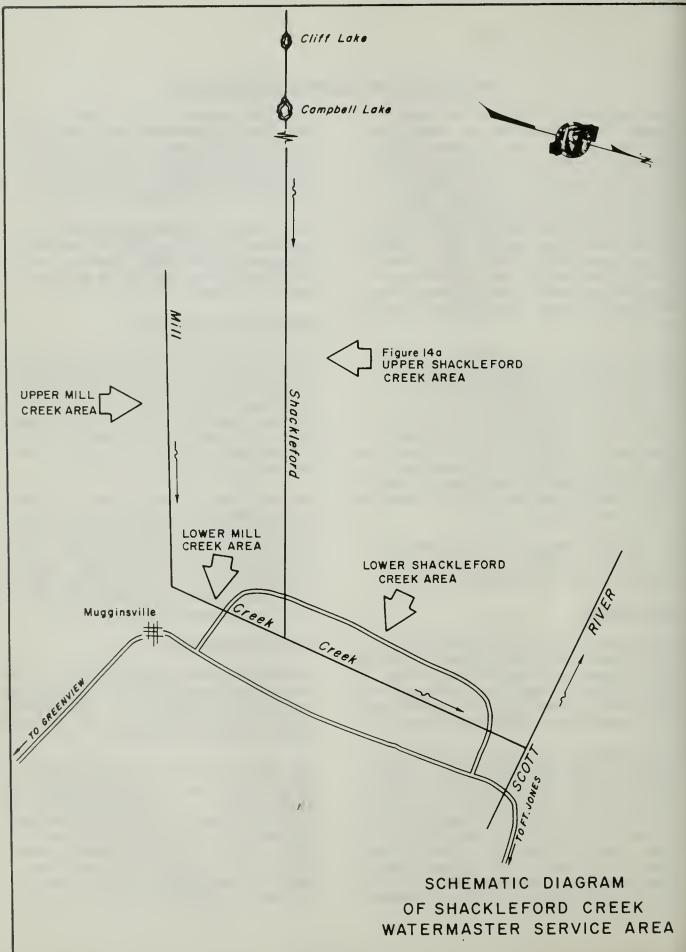
Irrigation is accomplished primarily by wild flooding of permanent pasture and alfalfa fields. Water is distributed by ditches and laterals to the places of use. Shackleford Ditch, the largest of these ditches, has a length of about 6 miles and a capacity of about 12 cubic feet per second.

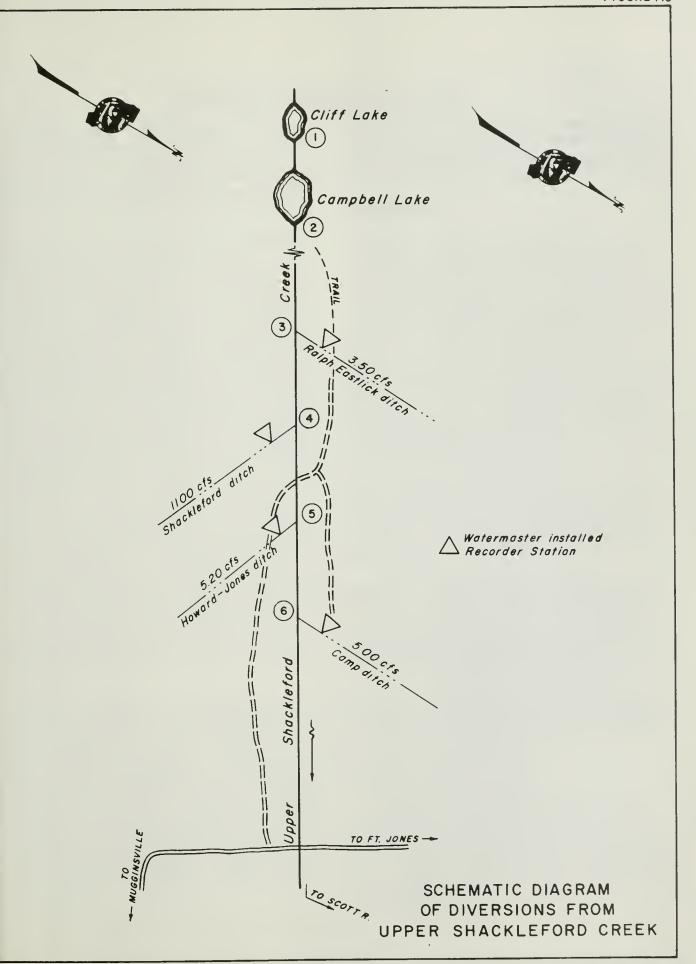
The Shackleford Creek decree (see Table 1) provides four separate areas of distribution within the service area and establishes the following number of priority classes for these areas: Upper Shackleford Creek - seven; Lower Shackleford Creek - seven; Upper Mill Creek - three; and Lower Mill Creek - two.

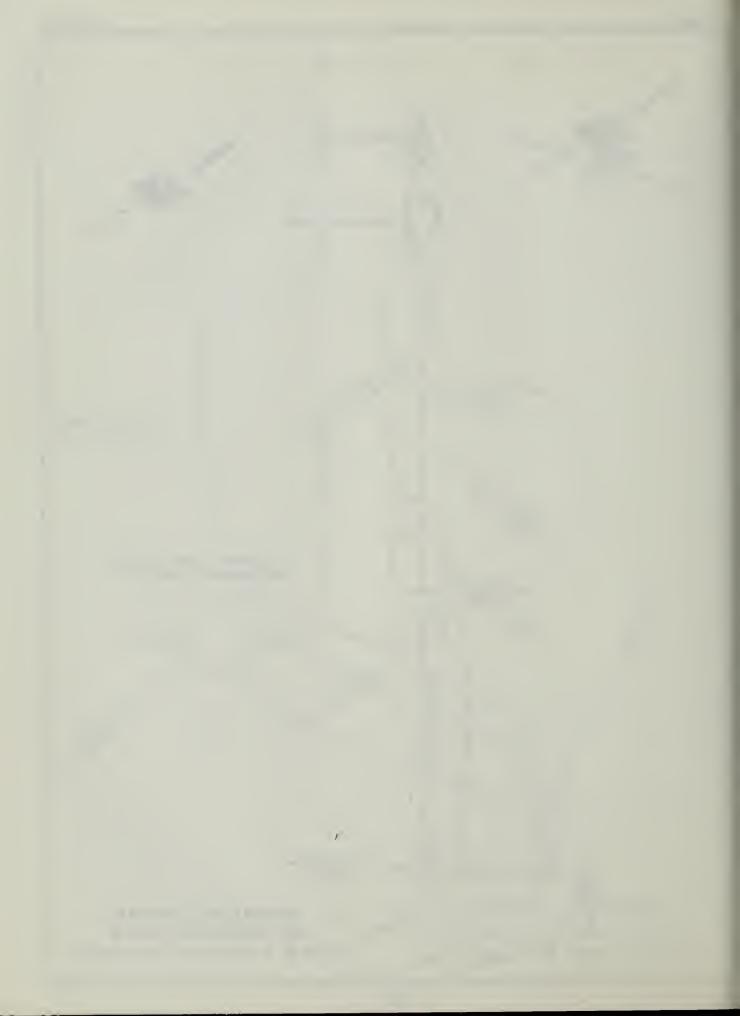
1969 Distribution

Watermaster service began June 1 in the Shackleford Creek service area and continued until September 30. John Nolan, Water Resources Technician II, was watermaster during this period.

The available water supply was above normal early in the season and about normal after August 1. Water right owners in the Howard-Jones Ditch did not use any of their water during the 1969 season. Their fourth priority allotment (seven priorities in the service area) were therefore available for use by owners of lower priorities.







Shasta River Watermaster Service Area

The Shasta River service area is located in the central part of Siskiyou County, south and east of the town of Yreka. There are 108 water right owners in the service area with total allotments of 594.612 cubic feet per second.

The source of water supply is Shasta River and its several tributaries. upper reaches of the service area are served by two groups of tributaries. One group, comprising Boles, Beaughan, Carrick, and Jackson Creeks, rises on the northwestern slopes of Mount Shasta. The other group, consisting of Dale and Eddy Creeks, and Shasta River west of U. S. Highway 99, rises on the eastern slopes of the Trinity Mountains. All these streams join the main stem Shasta River above Dwinnell Reservoir near the town of Weed. As the Shasta River flows northward from Dwinnell Reservoir to its confluence with the Klamath River, north of Yreka, it is joined by three major tributaries. Parks Creek, rising on the eastern slopes of the Trinity Mountains, enters from the west near the town of Gazelle. Big Springs Creek, from Big Springs Lake, enters from the east about a mile below Parks Creek. Little Shasta River, rising on the western slopes of the mountainous area between Butte Valley and Shasta Valley, enters from the east near the town of Montague.

The place of use is in Shasta Valley which is approximately 30 miles long and 30 miles wide. The valley has numerous small, coneshaped, volcanic hillocks scattered throughout its central portion that produce the effect of dividing the area into a number of distinctively separate parts. Because of these formations only about 141,000 acres of the approximately 507,000 acres within the valley are irrigable. The valley floor elevation averages approximately 3,000 feet.

A schematic drawing of each major stream system within the Shasta River service area is presented as Figures 15 through 15i, pages 99 through 108.

Water Supply

The water supply for Shasta Valley is derived from snowmelt runoff, springs and underground flow, and occasional summer thundershowers. In several portions of the stream system the spring and underground flow is adequate to supply most allotments throughout the season. Much of the underground flow is derived from the northern slopes of Mount Shasta, which rises to an elevation of 14,162 feet at the south end of Shasta Valley. Although the snowpack on Mount Shasta is usually heavy, there is negligible surface runoff.

Parks Creek, Upper Shasta River, and Little Shasta River derive a major portion of their water supply from snowmelt runoff. This flow is usually adequate to supply all allotments until the middle of May.

Beaughan Creek, Carrick Creek, Shasta River from Boles Creek to Dwinnell Reservoir, Big Springs, and Lower Shasta River have enough runoff from springs to supply a large percentage of the allotments throughout the season.

Records of the daily mean discharge at several stream gaging stations in the Shasta River service area are presented in Tables 31 through 37.

Methods of Distribution

Irrigation of permanent pasture and alfalfa lands is accomplished principally by wild flooding. Much of the return water is recaptured and used on lower pasture lands. Sprinkling systems are used for irrigating some alfalfa and grain lands.

Water is diverted primarily by diversion dams and then conveyed by ditch or canal to the place of use. The largest and longest canal in the area is the Edson-Foulke Yreka Ditch, which has a capacity of about 60 cubic feet per second and a length of about 15 miles. Water is also supplied into ditch systems by pumped diversions. The largest of these belong to three irrigation districts. Several riparian water right owners also use pump diversions.

Many privately owned storage reservoirs exist in the area. Water storage from these reservoirs is used to supplement continuous-flow allotments.

The Shasta River decree (see Table 1) provides eight separate areas of distribution within the service area. This decree established the following number of priority classes for these areas: Shasta River above the confluence with Big Springs Creek - 43; Jackson Creek - 7; Parks Creek - 25; Shasta River below the confluence with Big Springs Creek - 29; and Little Shasta River - 7.

Three privately operated water districts within the service area have main diversions which are under supervision of the watermaster. These are: Shasta River Water Users Association, Grenada Irrigation District, and Big Springs Irrigation District. A fourth, the Montague Water Conservation District, stores water in Dwinnell Reservoir for use by the District and by natural flow water right owners immediately below the dam. The watermaster is responsible for diversion to these users.

A number of riparian water users along the Lower Shasta River were not included in the Shasta River decree. Owners of these undefined water rights are therefore not subject to watermaster supervision; consequently, in seasons of short supply these rights can be the cause of many water distribution problems.

1969 Distribution

Watermaster service began April 1 in the Shasta River service area and continued through September 30. John A. Nolan, Water Resources Technician II, was watermaster during this period.

The available water supply in the service area was generally above average during the season.

Parks Creek. The flow in Parks Creek was sufficient to supply all allotments (25 priorities) until mid-July. water continued to be diverted into the Yreka Ditch until late July. The first priority allotments of six cubic feet per second were available until August 1, after which first priority allotments were available in decreasing amounts for the remainder of the season. Water users downstream from the lowest first priority diversion received a portion of their allotments during the latter part of the season from return flow and from water rising in the gravel streambed.

Upper Shasta River. During early spring enough water was available to satisfy all allotments (eight priorities). As the flow decreased, the following levels of priority allotments were met: August 5 - all of fourth priority; August 12 - all of third priority (Yreka Ditch main allotment); and September 6 (the seasonal low) - 15 percent of third priority.

Shasta River from Boles Creek to Dwinnel Reservoir. Boles Creek and Shasta
River from Boles Creek to Dwinnel Reservoir were operated as one stream, under a long-standing oral agreement among
the water right owners, with water being
distributed on an equal and correlative
basis. Adequate water was available to
satisfy all allotments until the middle
of August. All diversions were then
cut to 70 percent. In mid-September the
flow increased to again allow diversion
of 100 percent of allotments.

Beaghan Creek. The flow of Beaughan Creek was sufficient to satisfy most demands (five priorities) for the entire season. The creek is routed through a mill pond owned by the International Paper Company which uses approximately 35 percent of the flow for industrial purposes.

Carrick Creek. The water supply in Carrick Creek was adequate to satisfy all allotments (13 priorities) during the entire irrigation season.

Little Shasta River. Enough water was available in Little Shasta River to satisfy all fifth priority allotments (seven priorities) until late June. After that date, close regulation became necessary to adequately distribute this priority. The flow continued to decrease to approximately 10 percent of the fourth priority allotments by the end of August. It then stayed constant for the remainder of the season.

The daily mean discharge of Little Shasta River near Montague is presented in Table 36, page 98. This runoff is augmented by rising water along the river channel, and by substantial inflow from Cleland Springs, a tributary approximately two miles below the stream gaging station. Therefore, considerably more water is available for distribution at downstream diversion points than is indicated in the discharge table.

Dwinnell Reservoir. Releases from Dwinnell Reservoir to Montague Water Conservation District commenced on April 14 and continued into October. Reservoir operation data from the 1969 season are shown in Tables 33 and 34, pages 96 and 97.

By agreement with Montague Water Conservation District, water users on Shasta River below Dwinnell Reservoir received stored water from the reservoir on demand in lieu of their natural flow rights. The agreement allotment totals and the amount delivered to each user this season are shown in the tabulation below.

DELIVERIES TO NATURAL FLOW WATER RIGHT OWNERS BELOW DWINNELL RESERVOIR - 1969

Name of Water Right Owner	Allotment in Acre-feet	Dwinnell	Allotment Delivered from Dwinnell Reservoir Acre-feet % of Allotment			
Flying 'L' Ranch	198	12	6			
Frank Ayers	464	0	0			
J. N. Taylor	1,200	1,200	100			
W. W. Valentine Hole-in-the Ground Ranch Seldom Seen Ranch	596 924	0	0 0			
Totals	3,382	1,212	36			

Big Springs. The flow of Big Springs was sufficient to satisfy approximately 50 percent of third priority allotments through the first half of the season. Usually during July, August, and September, the flow in Big Springs increases as snowmelt from higher elevations on Mount Shasta percolates into the ground and reappears as surface flow at Big Springs Lake. As a result,

Big Springs Irrigation District, a third priority water right owner, was able to pump its full allotment from late July through the remainder of the season.

Lower Shasta River. The water supply in Lower Shasta River was sufficient to satisfy all allotments (29 priorities) for the entire season.

SHASTA RIVER WATERMASTER SERVICE AREA

TABLE 31 SHASTA RIVER AT EDGEWOOD

<u>Oay</u> :	March	: April :	May:	June :	July :	August	: September	: Day
1 2 3	106 104 98	170 164 150	118 106 95	140 136 140	61 60 57	16 16 15	6.8 6.8 6.8 5.8	1 2 3
4 5	92 92	136 216	89 90	147 145	45 44	14 14	5.8 5.8	2 3 4 5
6 7 8	93 82 79	156 130 117	109 144 170	136 122 116	42 41 38	13 12 11	5.3 5.8 6.8	6 7 8
9 10	75 72	117 110	240 246	110 112	35 33	10 11	6.8 6.8 8.8	8 9 10
11 12 13 14	72 70 70 70 92	113 132 131 128 113	288 292 315 270 212	116 101 98 93 91	26 27 27 26 26	12 8.8 6.8 5.8 5.3	8.8 8.8 10 12 12	11 12 13 14 15
16 17 18 19 20	104 117 100 91 89	110 120 132 131 136	200 214 240 198 160	86 84 81 82 80	25 24 25 25 25 24	5.8 5.3 5.3 5.3	13 14 15 17	16 17 18 19 20
21 22 23 24 25	90 93 93 92 93	156 198 240 181 148	158 160 182 202 195	73 70 70 69 70	22 22 22 22 22 22	5.8 5.8 5.3 5.3	19 21 22 22 22	21 22 23 24 25
26 27 28 29 30 31	103 117 140 173 210 202	122 113 121 135 122	184 161 144 140 149	72 69 70 65 62	21 21 19 18 17	5.8 8.4 5.8 5.8 8.8	23 24 24 25 25	26 27 28 29 30 31
Mēan Rūnoff Tn Acre-Feet	6300	8430	11150	5760	1860	536	835	Runoff In Acre-Feet

TABLE 32
PARKS CREEK ABOVE EOSON-FOULKE YREKA DITCH

		' '	MINO ONLER MOO					
0 a y : 1 2 3 4 5 5	March	: April	: <u>May</u> :	June : 141 143 140 141 136	38 36 33 30 28	: August : 5.9 5.8 5.8 5.5 5.4	3.6 3.7 3.7 3.7 3.6	: <u>Day</u> 1 2 3 4 5
6 7 8 9 10			76* 105	136 135 121 110 94	27 25 23 21 21	5.3 5.2 5.1 5.1	3.6 3.6 3.6 3.0	6 7 8 9 1 D
11 12 13 14 15			83 64 61 67 97	110 83 79 73 71	22 22 21 19 17	4.9 4.9 4.9 4.7	3.6 3.6 3.6 3.6	11 12 13 14 15
16 17 18 19 20			113 129 136 141 141	69 67 66 65 65	16 13 11 9.9 9.7	4.7 4.6 4.6 4.6 4.3	3.6 3.6 3.6 3.6	16 17 18 19 20
21 22 23 24 25			140 137 135 128 134	68 65 64 61 57	9.7 9.7 9.3 9.1 8.6	4.1 4.1 4.0 4.0 4.0	3.7 3.7 3.8 3.8 3.9	21 22 23 24 25
26 27 28 29 30 31			125 110 113 117 110	53 51 48 44 40	7.9 7.5 7.3 6.9 6.6	3.9 3.9 3.8 3.7 3.6	4.0 4.0 4.0 4.0 4.0	26 27 28 29 30 31
Runoff In Acre-Feet			5100	5150	1050	287	220	Mean Runoff In Acre-Feet

^{*} Beginning of Record

SHASTA RIVER WATERMASTER SERVICE AREA October 1, 1968 through September 30, 1969 (in acre-feet)

TABLE 33 DAILY MEAN STORAGE IN DWINNELL RESERVOIR

Day	-	2	ന '	4	വ	9	7	ထ	6	2	=	12	<u>E</u>	14	15	16	17	<u>æ</u>	<u>6</u>	20	21	22	23	24	25	26	27	78	23	30	31
Sept.	25, 300	25,060	24,820	24,620	24, 430	24, 200	23,980	23, 760	23, 570	23, 390	23, 180	23,010	22,830	22,650	22, 440	22, 230	22,000	21,820	21,640	21, 470	21,330	21, 190	21,080	20,970	20,860	20,730	20,600	20, 480	20,320	20, 210	
Aug.	33,990	33,740	33, 400	33,060	32,690	32, 420	32,110	31,840	31,550	31,260	30,940	30,660	30, 430	30, 180	29,870	29,600	29,380	29,080	28,920	28,520	28, 190	27,950	27,650	27,350	27,050	26,820	26,520	26, 220	26,000	25, 750	25, 500
July	44,440	44,200	43,810	43,680	43, 200	42,830	42,490	42, 120	41,810	41, 490	41,130	40,760	40,450	40,110	39,770	39, 400	39,000	38,660	38,440	38,000	37,660	37,320	36,980	36,710	36, 370	36, 030	35,690	35, 350	35, 010	34,670	34, 330
June	48, 490	48,460	48,420	48,400	48, 290	48,220	48,160	48, 140	48, 110	48,090	48,070	48,070	47,920	47,790	47,680	47,440	47, 260	47,030	46,960	46,840	46,710	46,510	46, 280	46,060	45,840	45,630	45,410	45, 220	45,000	44,740	
May	44, 460	44, 540	44,640	44,760	44,890	45,060	45, 230	45,480	45,640	45,800	45,980	46, 210	46,560	46,820	47,100	47, 280	47,460	47,640	47,820	47,930	47,950	47,970	48,000	48, 130	48, 260	48,400	48,540	48,540	48,520	48,510	48,510
Apr.	39,640	39,960	40,330	40,550	41,030	41, 400	41,660	41,820	41,980	42, 140	42, 250	42, 370	42,520	42, 590	42,660	42,660	42,670	42,740	42,800	42,860	42,960	43, 120	43,500	43,970	44, 170	44, 240	44, 260	44, 280	44,350	44,400	
Mar.	35,080	35,300	35, 520	35,620	35,810	35,910	35,960	36, 060	36, 200	36, 250	36, 280	36, 340	36,400	36,440	36, 490	36,610	36,710	36,880	37,040	37, 140	37, 220	37,320	37,420	37,520	37,610	37,730	37,830	38,000	38,240	38,660	39, 220
Feb.	26.750	26,900	27,050	27, 200	27,350	27,530	27,650	27,880	28, 180	28,580	29,760	30,910	31,440	31,840	32, 100	32, 400	32,610	32,970	33, 190	33, 400	33, 560	33,740	33,900	34,080	34, 240	34, 420	34,580	34,720			
Jan.	14.210	14, 460	14,650	14,850	15,060	15, 240	15, 390	15,620	15, 780	15, 900	16, 100	16,640	18, 460	19, 400	19,820	20,070	20, 170	20,320	20,560	21, 220	22, 310	23, 040	23, 530	23, 930	24,920	25, 430	25,940	26, 240	26,500	26,570	26, 570
Dec.	7.930	8,010	8,060	8, 130	8,220	8,300	8,420	8, 500	8,620	9, 100	9.850	10,080	10,400	10,460	11,500	12, 240	12, 520	12,670	12,800	12,920	13,020	13, 240	13,380	13,380	13, 430	13,600	13,800	13,860	13,920	14,040	14, 140
Nov.	5.040	5, 110	5, 200	5, 290	5, 360	5.430	5,500	5,570	5,620	5,730	5.820	6,000	6, 140	6, 290	6,340	6, 470	6, 580	6,720	6,820	6,930	7,030	7,140	7, 230	7,320	7,440	7,520	7,600	7,680	7,780	7,840	
Oct.	0 4 970	4 900	4.820	4.750	4, 700	4.600	4,540	4, 480	4.440	4,380	4.400	4, 400	4,400	4,420	4,440	4,460	4,470	4,490	4,520	4,550	4,590	4,620	4,650	4, 680	4,700	4,720	4,740	4, 760	4,800	4,830	4, 920
0ay	-		1 m	7	. r	9	-	œ	o	10	=	1.2	6.	14	15	91	11	18	19	20	21	22	23	24	25	26	27	28	53	30	31

SHASTA RIVER WATERMASTER SERVICE AREA 1969 Oally Mean Discharge in Cubic Feet Per Second

TABLE 34 OWINNELL RESERVOIR

Oay :	April :	May :	Juna :	July :	August	: September	: October	<u>Oay</u>
1 2 3 4		42 42 42 42 42	71 71 75 75	60 61 63 67	84 84 84 84	73 67 67 62	34 35 36 38	1 2 3 4
5 6 7 8 9 10		50 63 71 73 74	75 70 67 59 56 45	70 74 77 83 86 90	63 77 80 81 84 90	58 61 67 64 59 58	35 34 29 16 6.8**	5 6 7 8 9 10
11 12 13 14 15	41* 47	74 75 75 73 73	35 39 40 41 41	92 92 92 89 86	101 115 108 93 89	56 54 54 55 59		11 12 13 14 15
16 17 18 19 20	47 47 47 47 47	76 75 75 76 76	61 62 64 66 61	86 85 84 84	79 77 79 78 81	60 60 59 55 55		16 17 18 19 20
21 22 23 24 25	50 54 53 47 42	73 71 71 71 71	51 51 51 51 48	84 84 85 87 87	81 81 81 81 81	51 44 38 35 32		21 22 23 24 25
26 27 28 29 30 31	42 42 42 42 42	64 64 71 71 71 71	51 54 54 54 54	86 86 86 85 85	81 81 86 83 77 75	30 30 32 36 35		26 27 28 29 30 31
Mean Runoff in Acre-Feet	1550	4080	3360	5050	5190	3110	519	Mean Runoff In Acre-Feet

^{*} Beginning of Record ** End of Record

TABLE 35 LITTLE SHASTA RIVER NEAR MONTAGUE

			LITTLE SHA	ISTA RIVER	NEAK MUNI	AGUE		
_Oay :	March	: April :	May :	June :	July :	August	: <u>September</u>	: <u>Oay</u>
1 2 3 4 5	11 11 12 10	106 90 70 60 71	73 71 65 62 68	45 41 39 38 37	13 13 13 12 12	6.6 6.6 6.3 6.3	5.0 5.0 5.0 5.0 5.0	1 2 3 4 5
6 7 8 9 10	12 11 11 12 11	66 61 59 58 60	76 83 89 92 94	32 29 29 29 29	12 11 11 11 11	6.3 6.0 6.0 5.6	4.7 4.7 4.7 4.7 4.7	6 7 8 9 10
11 12 13 14 15	11 11 11 12 18	72 83 69 66 62	95 95 94 90 84	29 26 25 23 23	10 9.9 9.5 9.5 9.5	5.6 5.6 5.6 5.6	4.7 4.7 4.7 4.7 4.4	11 12 13 14 15
16 17 18 19 20	30 41 38 29 29	71 90 98 95 100	80 78 80 76 73	21 20 20 23 21	9.0 8.5 8.5 8.1 8.1	5.6 5.3 5.3 5.3	4.7 4.4 5.0 5.3 5.6	16 17 18 19 20
21 22 23 24 25	32 49 54 51 56	1 04 1 02 92 7 8 71	70 68 67 66 64	18 18 18 18	7.6 7.3 8.1 8.5 8.1	5.3 5.3 5.0 5.0	5.3 5.0 4.7 4.7 4.4	21 22 23 24 25
26 27 28 29 30 31	71 83 94 106 121	68 71 80 82 75	65 64 57 52 49 47	16 16 16 14 14	7.6 7.3 6.9 6.9 6.9	5.0 5.3 5.3 5.3	4.4 3.8 3.8 4.4 4.7	26 27 28 29 30 31
Mean Runoff In	38.0	17.1	73.8	24.8	9.4	5.6	4.7	Mean Runoff fn
Acre-Feet	2340	4620	4540	1474	578	346	281	Acre-Feet

SHASTA RIVER WATERMASTER SERVICE AREA 1968 Daily Mean Discharge in Cubic Feet Per Second

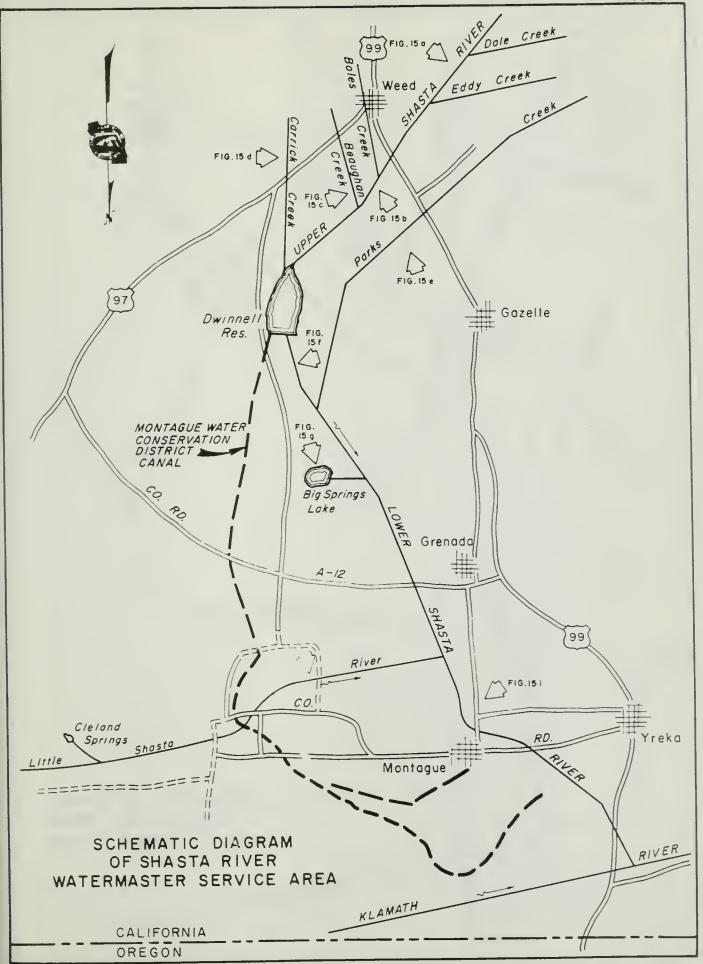
TABLE 38
SHASTA RIVER AT MONTAGUE-GRENADA HIGHWAY BRIDGE

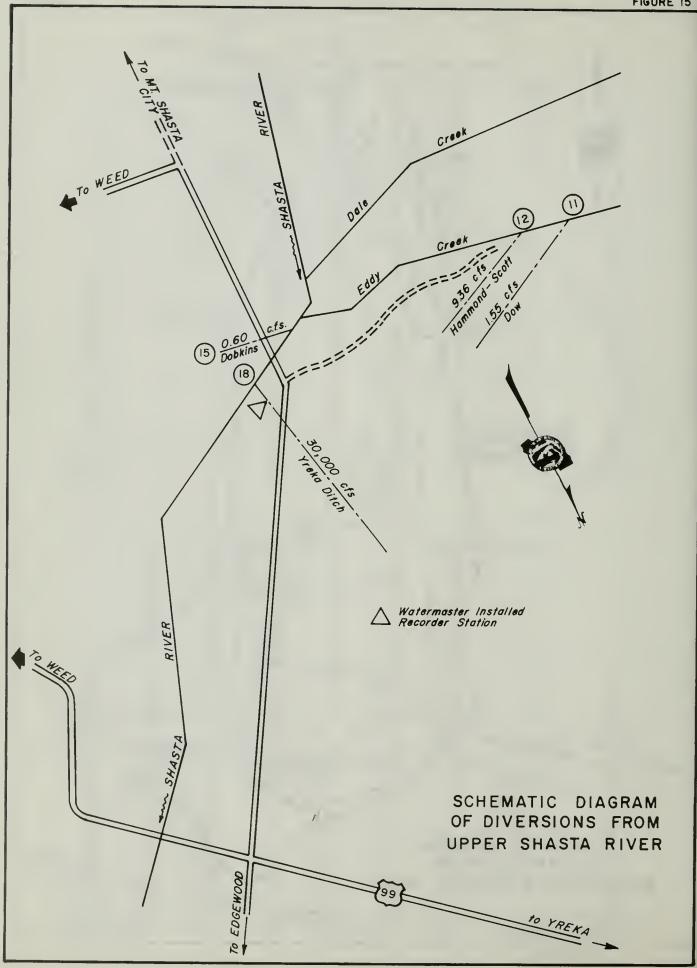
Oay :	March : April	: <u>May</u> :	June	: July :	August	: September	: <u>Oay</u>
1 2			59 55 42	108 67 53 58	37 33	73 71	1 2
2 3 4			42 48	53 58	31 30	85 80	2 3 4 5
5			82	43	21	55	
6 7			85 57	37 40	16 19	59 60	6 7 8 9 10
9 10		109*	81	35 39 37	17 17	55 34	8
10		113	79 112	37	21	21	
11 12		145 170	126 159	27 27	17 14	16 14	11 12
13		218	129	29	26	18	13 14
14 15		175 162	98 87	24 27	21 17	17 17	15
16 17		137 123	81 74	24	14 13	1 4 35	16 17
18		123	87	33 38	17	54	18
19 20		136 136	218 178	38 24	19 24	53 68	19 20
21		139	182	27	29	91	21
22 23		114 108	108 105	27 32	28 24	98 108	22 23
23 24 25		129 132	112 117	129 278	25 26	126 117	24 25
26		1 4 5	123	172	26	87	26
27 28		1 4 9 9 6	139 150	112 94	28 28	84 87	27 28
28 29 30		69 84	184 137	94	24 26	1 03 87	29 30
31	*****	75		78 42	37		31
Runoff In		130	6370	61.0	23.4	3660	Mean Runoff In
Acre-Feet		5920	6370	3750	1440	3000	Acre-Feet

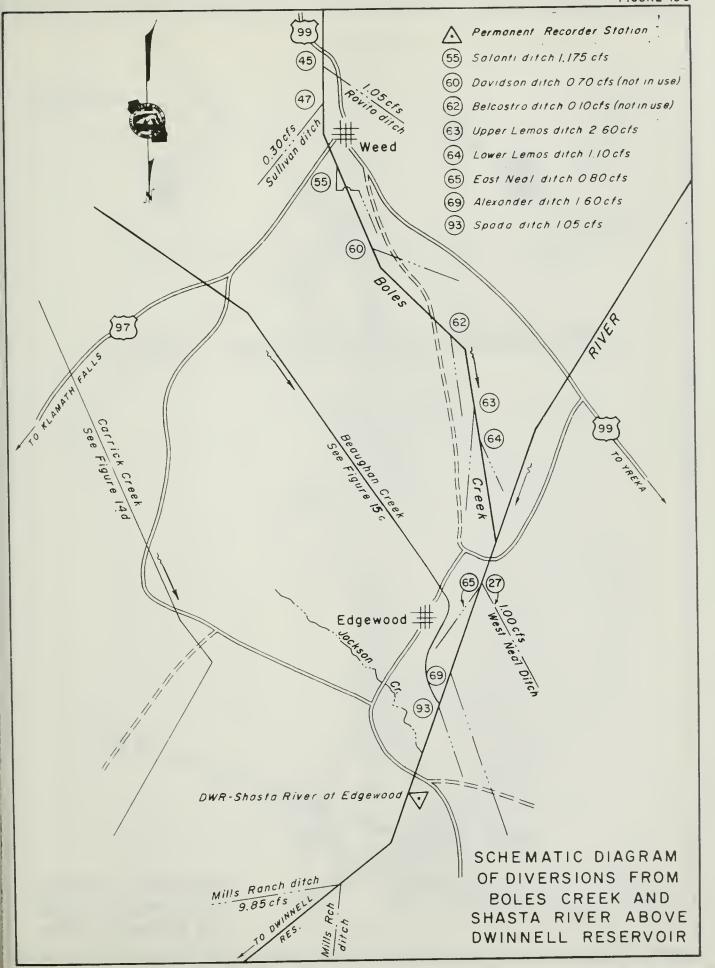
^{*} Beginning of Record

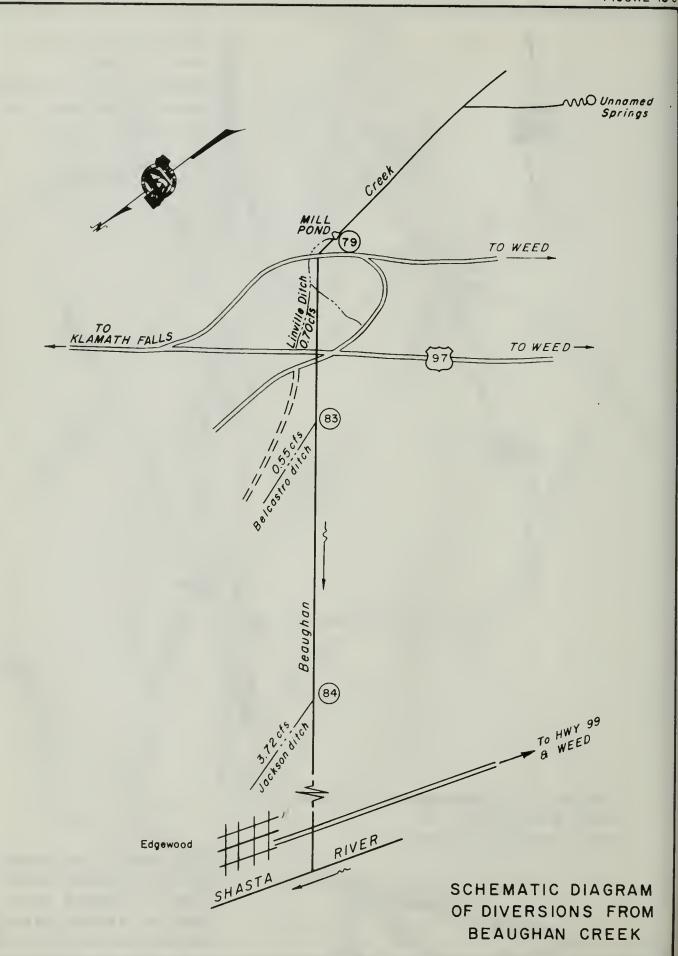
TABLE 37 SHASTA RIVER NEAR YREKA

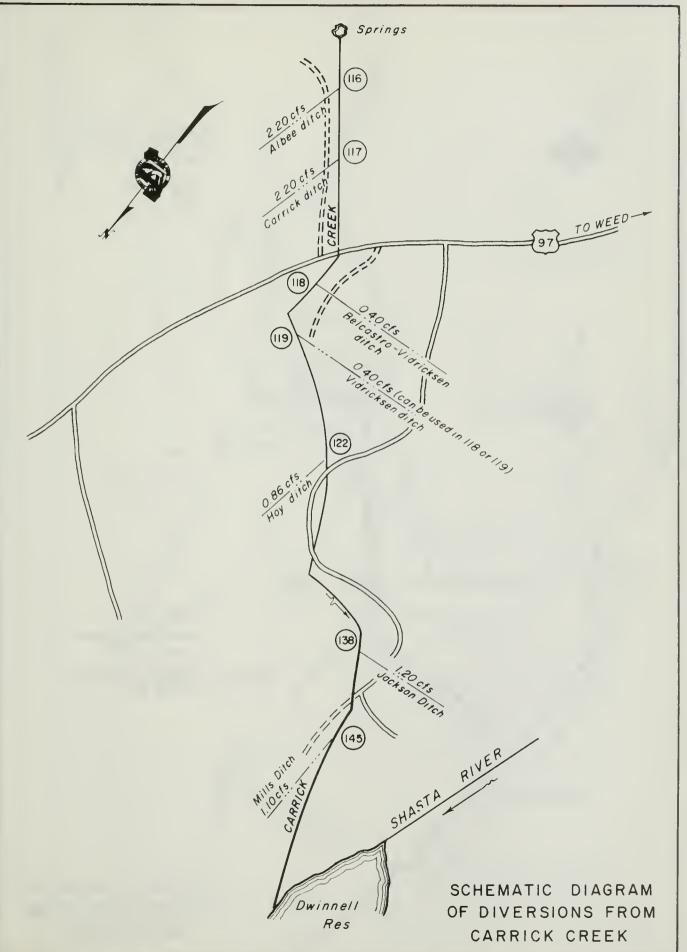
			01171	OIN MITEM	HEAR THERA			
<u> 0ay</u>	: <u>March</u> 397	: <u>April</u> : 348	<u>May</u> :	June 63	: <u>July</u> :	August 58	: September 66	: <u>Oay</u>
2 3 4 5	392 334 295 268	299 285 266 300	164 148 130 125	61 50 50 98	95 79 79 77	53 40 36 36	80 73 68 74	2 3 4 5
6 7 8 9 10	255 247 241 235 231	366 340 303 247 199	122 106 105 97 97	84 70 76 88 153	61 65 60 49 61	33 31 32 19 29	71 72 76 66 56	6 7 8 9 10
11 12 13 14 15	228 223 218 216 216	177 172 160 153 188	117 127 195 159 157	150 182 149 121 120	47 39 39 41 38	27 25 21 36 37	4 4 4 5 4 9 5 8 5 5	11 12 13 14
16 17 18 19 20	217 221 234 229 225	177 169 177 178 153	134 122 117 122 129	107 90 96 197 204	38 40 49 52 44	24 20 16 25 34	49 54 74 72 81	16 17 18 19 20
21 22 23 24 25	225 217 220 230 223	172 179 183 248 271	133 112 104 106 118	174 143 7 131 139 151	40 40 33 80 214	36 41 37 38 27	105 111 117 127 129	21 22 23 24 25
26 27 28 29 30 31	227 234 269 283 299 333	214 200 205 197 196	130 133 104 74 68	150 156 187 196 166	1 89 1 21 97 97 84 62	35 39 44 38 41 45	111 93 104 124 116	26 27 28 29 30
Runoff In	254	224	123	[27	72.5	34.0	80. 7	Mean
Acre-Feet	15630	13330	7540	7540	4460	2090	4800	Runoff In Acre-Feet

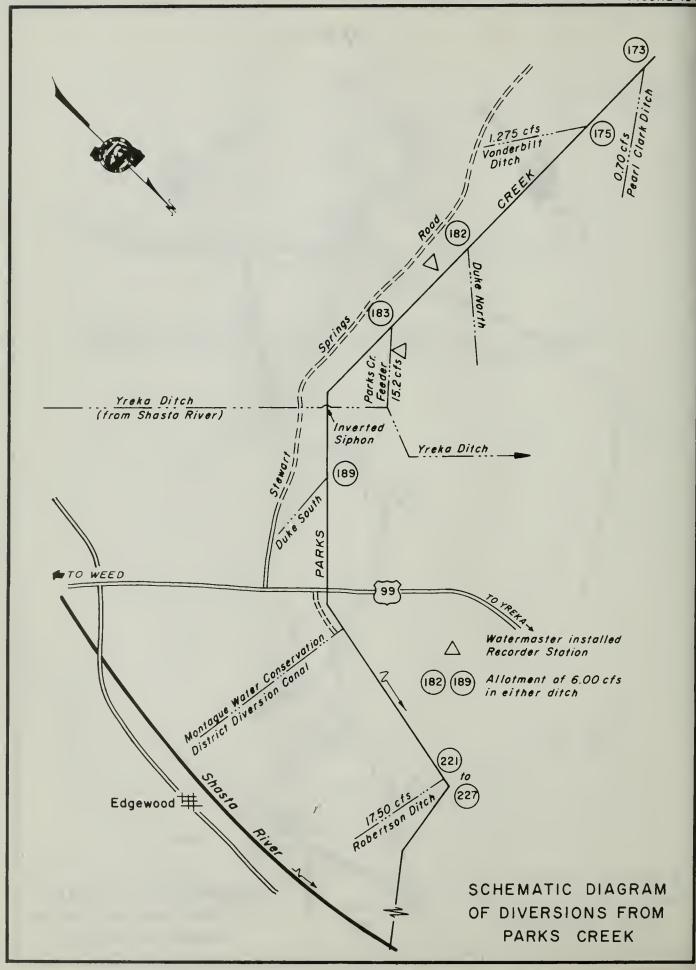


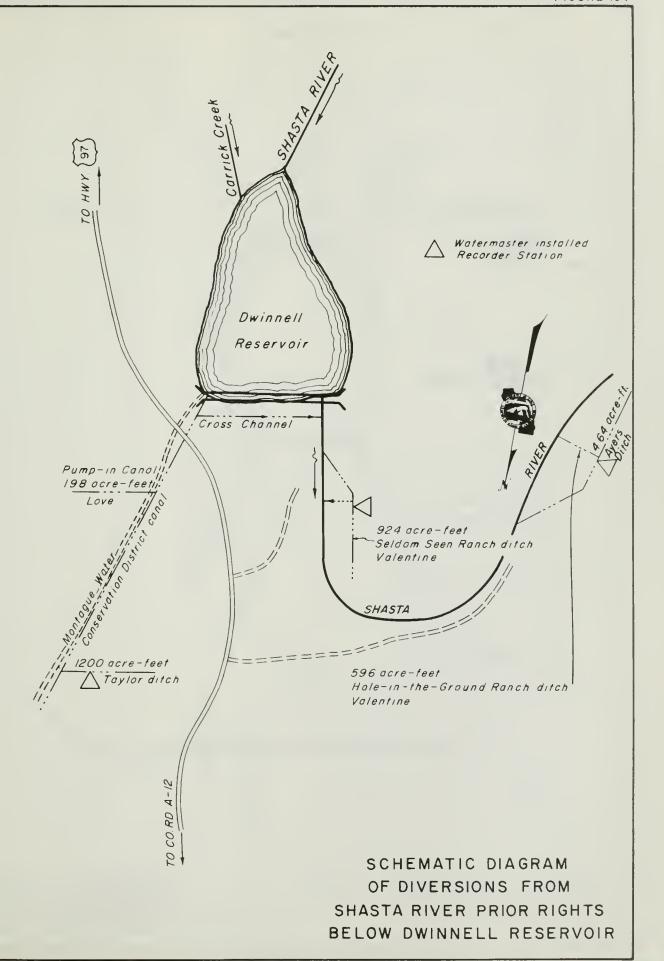




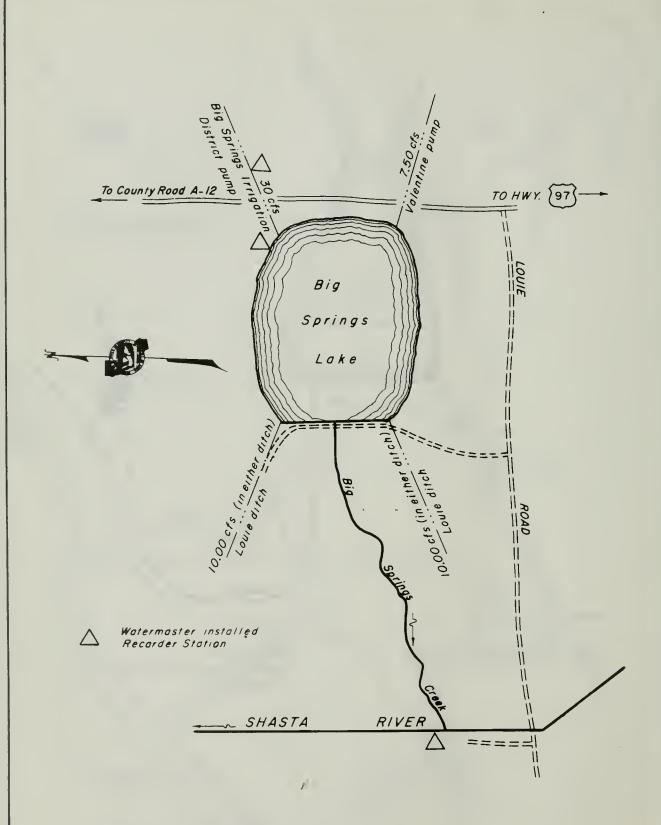




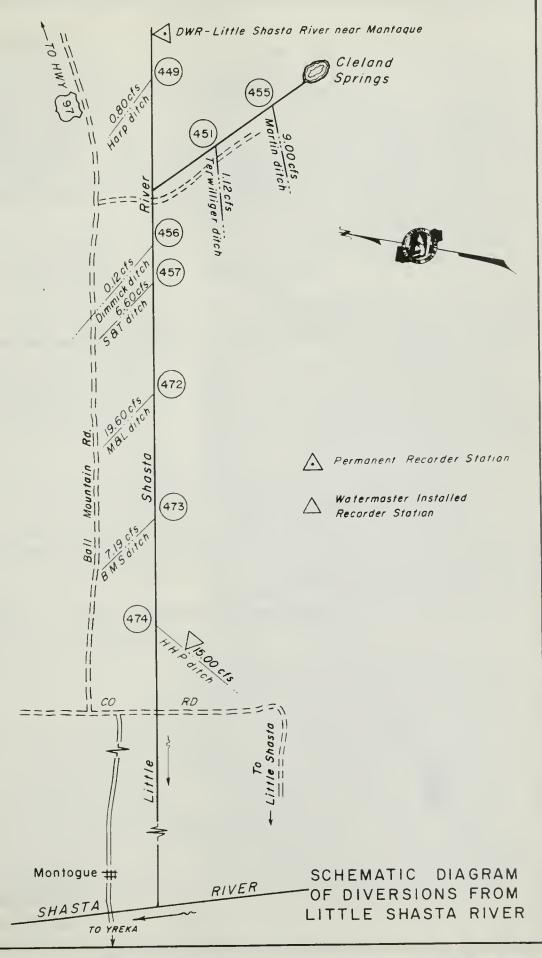


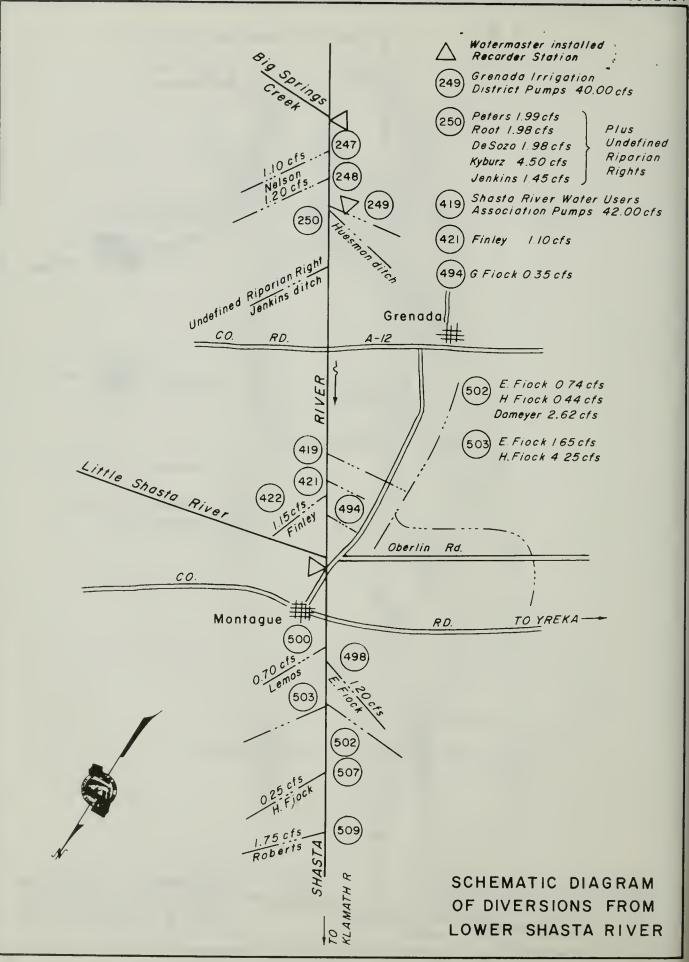


100



SCHEMATIC DIAGRAM OF DIVERSIONS FROM BIG SPRINGS LAKE





South Fork Pit River Watermaster Service Area

The South Fork Pit River service area is located primarily in Modoc County with a small portion extending into the northern part of Lassen County. There are 36 water right owners in the area with total allotments of 350.97 cubic feet per second.

Water supply for this service area is obtained from the South Fork Pit River and its tributaries which rise on the western slopes of the Warner Mountains. The river flows in a westerly direction, entering South Fork Valley near Likely. It then flows north through the valley to its confluence with the North Fork Pit River at Alturas. The South Fork Pit River is joined from the east by Fitzhugh Creek near the middle of the valley and by Pine Creek just south of Alturas.

The major area of water use is in South Fork Valley between Likely and Alturas. South Fork Valley is about 16 miles long and 3 miles wide with the valley floor lying at an elevation of about 4,500 feet. The valley is bounded on both sides by a rocky plateau that separates it from the surrounding mountains.

A schematic drawing of each major stream system within the South Fork Pit River service area is presented as Figures 16 through 16d, pages 113 through 117.

Water Supply

The water supply for Pine Creek is derived mostly from snowmelt runoff.
Therefore, runoff is usually small in the early spring, increases to a peak in May as temperatures rise, and then gradually decreases throughout the remainder of the season. Water users supplement their irrigation supplies from other sources whenever possible.

The water supply for Fitzhugh Creek consists of snowmelt runoff early in

the season and supplemental water diverted from Mill Creek above Jess Valley later in the season. Surplus water from Fitzhugh Creek is diverted into the Payne and French Reservoirs through Payne-French Ditch (Diversion 136) until about June, when the diversion is closed to supply downstream allotments. By July the creek has normally receded until only first priority allotments are available.

Payne Ditch (Diversion 1) is opened to import water from Mill Creek to Fitzhugh Creek when the snow has melted enough to allow access. This imported water is rediverted from North Fork Fitzhugh Creek through the Bowman Ditch to the Bowman Ranch. Return flow from Bowman Ranch to the creek is rediverted through Diversion 136 for stockwatering purposes in the Payne-French Ditch.

The water supply for the South Fork Pit River is derived primarily from snowmelt runoff, supplemented by water released from West Valley Reservoir. A number of streams, which rise at high elevations, collect at the mouth of Jess Valley to form the South Fork Pit River. West Valley Reservoir is located on West Valley Creek which enters the river below Jess Valley.

Most of the water users on the South Fork Pit River, except those in Jess Valley, are in the South Fork Irrigation District. The district stores water in West Valley Reservoir, which has a capacity of 22,240 acre-feet, and releases it to the South Fork Pit River as a supplemental supply when the natural flow becomes insufficient to meet demands. This usually occurs during the middle of June. Reservoir releases, together with the natural flow, are distributed by the watermaster in cooperation with the Board of Directors of the irrigation district. Except for extremely dry years, natural

flow, combined with stored water, is sufficient to supply all demands for water on the South Fork Pit River throughout the irrigation season.

Records of the daily mean discharge of the several stream gaging stations in the area are presented in Tables 38 through 40, pages 111 and 112.

Methods of Distribution

Irrigation of the lands along tributary streams is accomplished by flooding through use of small lateral ditches. The water is distributed on a continuous-flow basis to each user through gravity-flow diversion systems. In some cases, rotation is practiced among several users.

Most irrigation in the South Fork Pit River area is by the check and border method. The lands receive water essentially on demand by supplementing natural flow with releases from West Valley Reservoir. However, irrigation between the various ranches must be coordinated to eliminate large peak demands from the reservoir and to use the return flow as much as possible. Actual distribution varies each year as there is no specific irrigation schedule in use.

The South Fork Pit River decree and the Pine Creek Agreement (see Table 1) establish a two-priority class system of distribution for the Fitzhugh Creek and Pine Creek stream systems. Distribution to the South Fork Pit River users (the decree provides for a two-priority class system) is carried out on an equal and correlative basis in accordance with the water requirements for each ranch. This method of operation was made possible by construction of West Valley Reservoir in 1937.

1969 Distribution

Watermaster service began April 22 in the South Fork Pit River service area and continued until September 30. Lynn W. Peterson, W. R. Technician II, was watermaster during this period. The water supply for the 1969 irrigation season was well above average. Heavy winter storms created a near record snow-pack in the Warner Mountains. High run-off occurred in most streams until late spring. However, the extremely hot and dry summer caused flows in the smaller tributaries to decrease rapidly. Consequently, only an average supply of water was available in these streams during late summer.

Pine Creek. An abundant water supply existed in Pine Creek until about July 1. All priority allotments (two priorities) were satisfied during most of this period. Many water users frequently did not require all of their entitlements. During June heavy rains caused high flows on several occasions. At these times the surplus water was diverted into Dorris Reservoir for storage.

As the streamflow decreased during the latter part of the season, those water users with multiple diversion points followed their customary practice of rotating their allotments among their various ditches. At the end of the season sufficient water was available to serve about 50 percent of first priority allotments.

Fitzhugh Creek. Regulation began in late June when the Yankee Jim and Bowman ditches became accessible. At that time surplus water was still available. The Payne Ditch from Mill Creek was opened July 2. This imported water was added to the Bowman Ditch allotment in accordance with the decree. At the end of the season the available water supply had decreased to about 65 percent of first priority allotments (two priorities).

South Fork Pit River. The natural flow of the South Fork Pit River was sufficient to meet all demands until July 18. Releases from West Valley Reservoir began at that time and continued throughout the season. The reservoir reached its capacity of 22,240 acre-feet on April 16. At the end of September, 7,160 acre-feet remained in storage.

SOUTH FORK PIT RIVER WATERMASTER SERVICE AREA

TABLE 38 SOUTH FORK PIT RIVER NEAR LIKELY

0ay : 1 2 3 4 5	March 16 14 12 10 8.6	103 98 87 78 90	May : 369 354 357 348 351	248 232 219 219 219	83 79 67 75 77	139 145 161 150 111	: <u>September</u> 164 142 116 103 93	Day 1 2 3 4 5
6 7 8 9 10	7.0 5.8 4.4 3.8 3.6	96 103 90 81 77	369 408 478 565 628	217 202 198 237 223	83 73 70 70 73	92 108 137 139 132	93 93 92 93 92	6 7 8 9 10
11 12 13 14 15	3.5 3.5 3.7 5.0	79 88 90 94 88	664 719 698 691 664	241 212 196 194 184	63 53 47 49 50	124 118 126 137 162	89 89 92 92 90	11 12 13 14 15
16 17 18 19 20	19 25 30 35 41	88 110 163 184 223	616 565 530 515 483	1 74 1 6 8 1 6 4 1 8 4 1 8 6	42 34 52 70 70	1 84 1 84 1 80 1 76 1 76	90 90 92 94 96	16 17 18 19 20
21 22 23 24 25	43 67 76 62 65	269 322 369 375 357	449 422 397 381 366	176 152 145 154 136	73 72 70 83 98	174 172 170 170 170	94 90 75 52 53	21 22 23 24 25
26 27 28 29 30 31	78 87 94 99 1 02 1 06	345 339 339 348 360	351 324 299 274 266 257	136 124 106 94 90	134 134 134 130 130	168 170 170 170 168 166	52 50 47 46 46	26 27 28 29 30 31
Mean Runoff In Acre-Feet	2260	10970	28080	10770	4890	9420	5160	Mean Runoff In Acre-Feet

TABLE 39 WEST VALLEY CREEK BELOW WEST VALLEY RESERVOIR

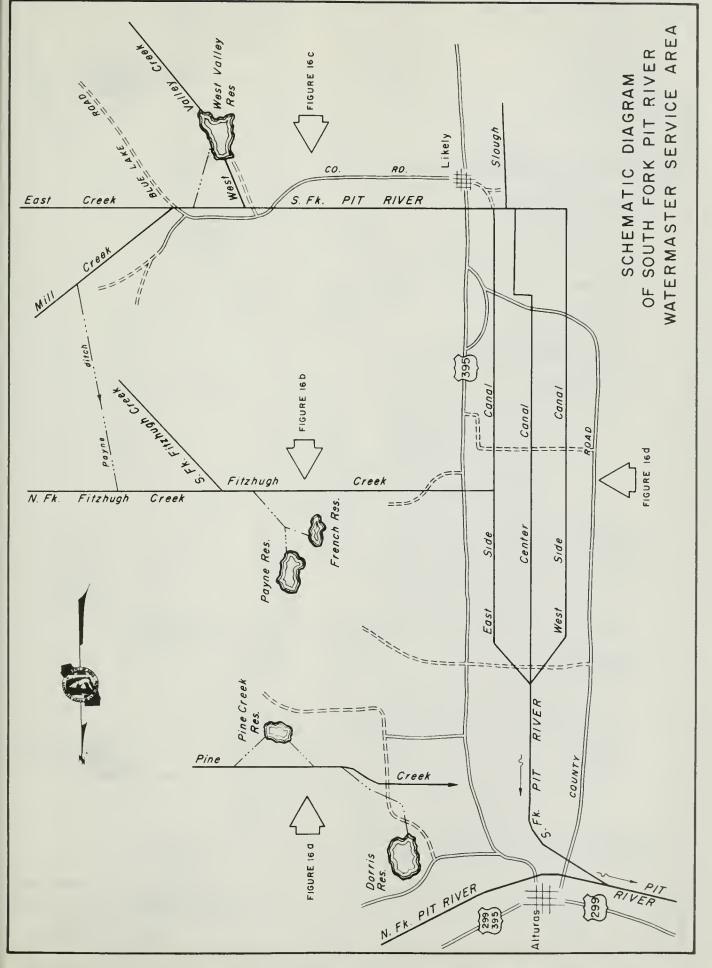
		TEST TALLET O	WEEK OFFOR	HEST TALLE	MESERVOI	"	
Day :	March : Apr		: June	: July :	August	: September	: Day
1 2 3 4 5		159 159 154 152 148	55 51 45 45 43	20 17 15 13 13	129 134 134 138 86	150 130 107 94 84	1 2 3 4 5
6 7 8 9 10		140 136 136 144 144	43 40 40 40 42	13 13 14 13 13	86 103 126 126 122	82 81 81 81 81	6 7 8 9 10
11 12 13 14 15		152 152 152 144 144	41 40 39 38 37	12 9.9 9.5 8.5 8.2	110 108 118 124 144	81 81 81 79 79	11 12 13 14 15
16 17 18 19 20		136 136 134 124 118	36 36 36 36 36	6.8 6.5 25 # 41 41	164 162 162 160 159	77 77 75 75 75	16 17 18 19 20
21 22 23 24 25	136 152 154	100	35 35 35 35 33	41 42 49 60 84	159 158 156 156 154	73 64 56**	21 22 23 24 25
26 27 28 29 30 31	15(162 163 159 159	77 5 68 9 65 9 62 59	30 29 26 23 22	118 118 118 118 118 118	153 150 150 150 150 150		26 27 28 29 30 31
Mean Runoff In Acre-Feet	156 2470	122	2220	2570	138 8490	3860	Mean Runoff In Acre-Feet

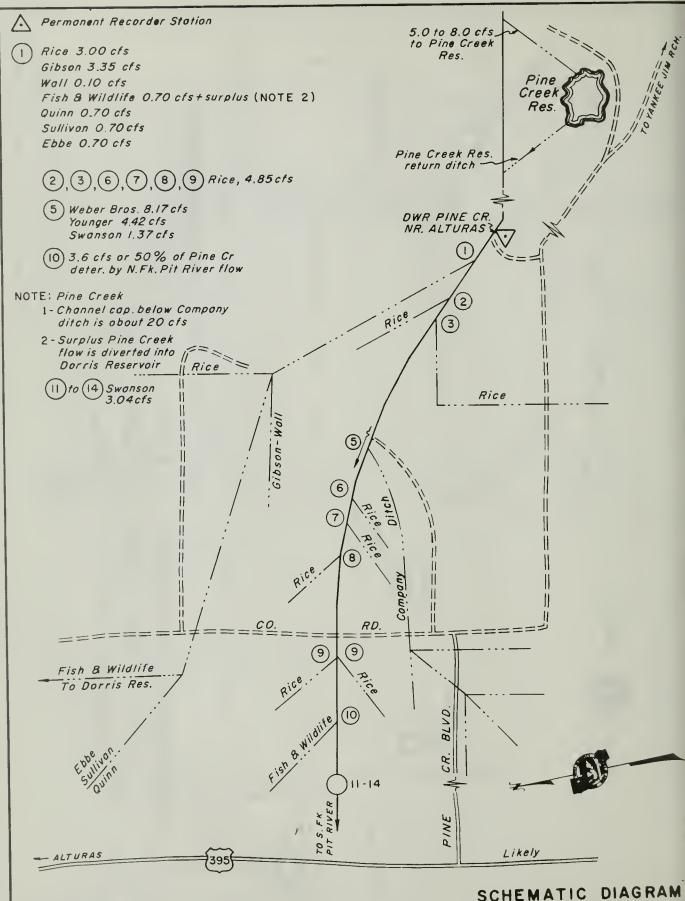
^{*} Beginning of Record ** End of Record # Beginning of Releases

SOUTH FORK PIT RIVER WATERMASTER SERVICE AREA 1969 Daily Mean Discharge in Cubic Feet Per Second

TABLE 40 PINE CREEK NEAR ALTURAS

Day :	March	: April :	May:	June :	July :	August :	September	: Day
1 2 3 4 5	13 13 14 14 14	31 29 26 25 28	42 40 40 39 40	67 67 64 62 61	30 29 29 28 28	16 16 16 16	14 13 13 13	1 2 3 4 5
6 7 8 9 10	1 4 1 4 1 4 1 4 1 4	29 31 29 25 25	45 51 58 62 69	61 61 64 65 61	27 25 25 25 25	16 16 16 15 15	13 13 13 13	6 7 8 9 10
11 12 13 14 15	14 14 14 14	26 28 29 30 28	93 104 115 115 102	63 53 50 48 46	24 23 23 22 21	15 15 14 14 14	13 13 13 13 13	11 12 13 14 15
16 17 18 19 20	14 23 31 21 18	28 30 35 33 34	98 91 90 93 91	46 46 44 43 42	20 20 19 18 18	14 14 14 14	13 13 13 13 13	16 17 18 19 20
21 22 23 24 25	18 30 26 19 19	38 44 46 46 42	88 87 87 88 88	40 39 39 37 36	18 18 18 18	14 14 14 14	13 13 13 13 12	21 22 23 24 25
26 27 28 29 30 31	20 20 21 23 27 31	35 34 36 41 41	88 88 82 77 69 67	36 35 35 33 31	18 18 17 17 17	14 14 14 14 14	12 12 12 12 12	26 27 28 29 30 31
Runoff In Acre-Feet	1130	1950	4740	2930	1340	900	764	





SCHEMATIC DIAGRAM OF DIVERSIONS FROM PINE CREEK .

SCHEMATIC DIAGRAM

OF DIVERSIONS FROM FITZHUGH CREEK

Canal

Fork

(126)

(136)

(137)

(138)

(149

(141)

(142)

(139

(141)

Side

(142)

(134)

(135)

======

Yonkee Jim diich

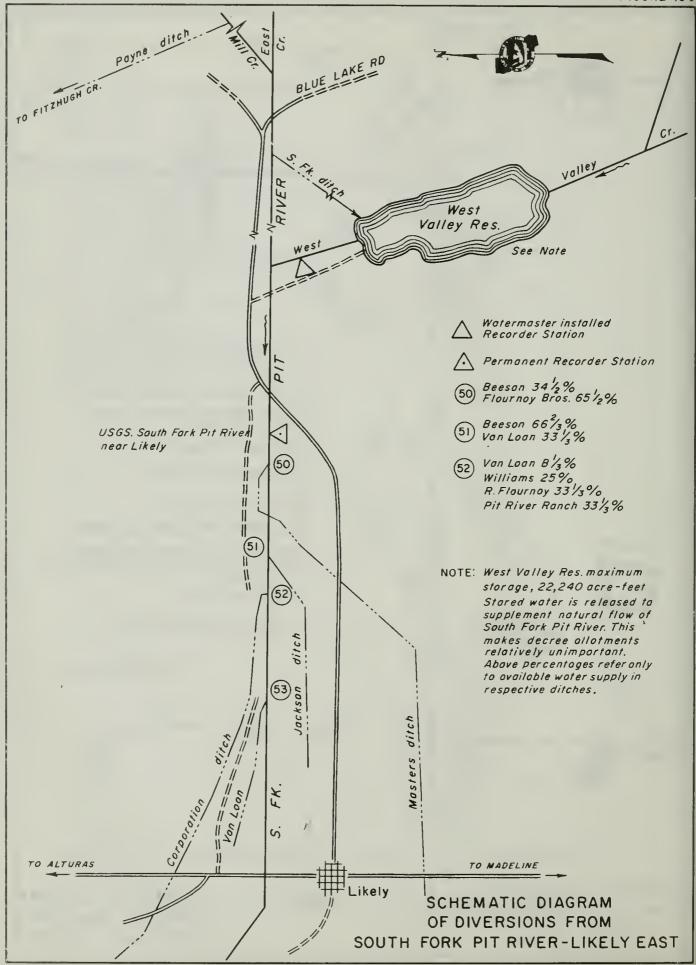
French

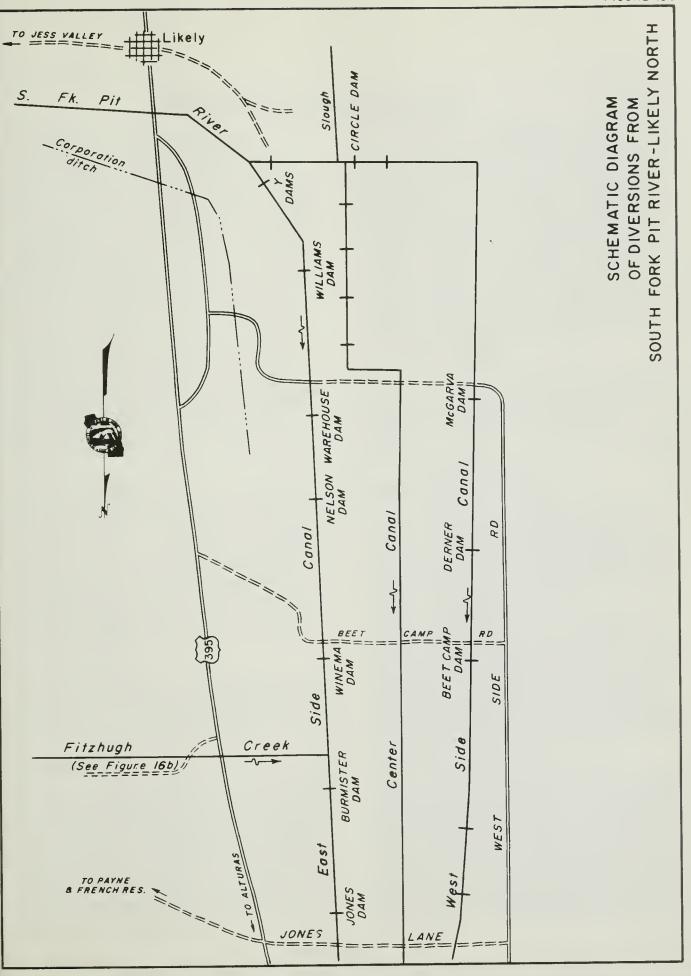
East

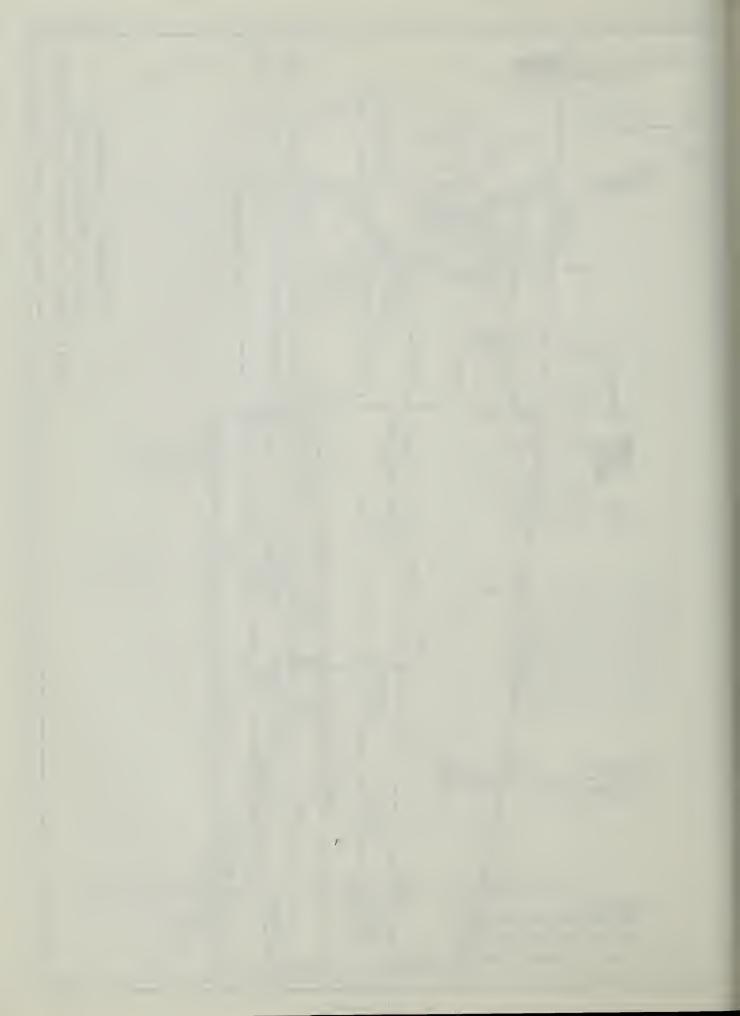
Res

Payne Res

TO ALTURAS







Surprise Valley Watermaster Service Area

The Surprise Valley service area is located in the extreme eastern part of Modoc County. There are 172 water right owners in the service area with total allotments of 313.75 cubic feet per second. The source of water supply is comprised of 10 individual stream systems rising on the eastern slope of the Warner Mountains. These streams are fed by snowmelt runoff and traverse a fast, precipitous course down the eastern slope of the Warner Mountains to the valley floor where numerous, scattered diversion ditches convey water to the irrigated lands. The place of use is situated in a long, narrow area extending in a north-south direction between the foot of the Warner Mountains and the Alkali Lakes which lie in the center of Surprise Valley.

Surprise Valley extends from nearly the Oregon border on the north to Lassen County on the south, a distance of approximately 50 miles. The valley varies in width from about 8 to 10 miles. It is bordered on the north, south, and west by the rugged Warner Range and on the east by the typical mountainous desert terrain of Nevada. The valley floor is at an elevation of approximately 4,700 feet.

A schematic drawing of each major stream system with the Surprise Valley service area is presented as Figures 17 through 17j, pages 129 through 140.

Water Supply

The water supply is derived almost entirely from snowmelt runoff, with only minor spring-fed flows occurring in the latter part of the season. There are no known economically justified storage sites on the service area creeks. Because of the lack of regulatory storage, the available water supply at any specific diversion

point may vary considerably within a few hours. An extreme differential in day and night temperatures causes extensive variation in snowmelt runoff quantities. This problem is further aggravated by the relatively short and steep drainage area. In addition, occasional summer thundershowers may cause a creek to discharge a flow of mammoth portions for several hours. These flashes are apt to cause considerable damage in washouts and debris deposition and are of such short duration that no beneficial use can be made of the water.

Records of the daily mean discharge at several stream gaging stations within the service area are presented in Tables 41 through 51, pages 122 through 127.

Method of Distribution

The continuous flow method of distribution is employed on most creeks; however, in a few instances the available water supply is rotated among the users in accordance with either decree schedules or by mutual agreements.

Alfalfa and meadow hay, the major crops grown in the valley, are irrigated in most instances by wild flooding, although some lands are dependent upon subsurface irrigation. Also, recent development of deep wells has placed many acres under sprinkler irrigation. Only surface water supplies are under state watermaster service.

To facilitate distribution of irrigation waters, construction of permanent diversion dams, headgates, and measuring devices has been stressed during recent years. Although these structures do not solve the problems of discharge variation and debris deposition, they do provide significant assistance in solving water measurement and distribution problems.

The several decrees (see Table 1) which apply to the Surprise Valley service area establish the following number of priority classes for the various stream systems: Bidwell Creek - four until July 10, five thereafter; Mill Creek four; Soldier Creek - rotation March 19 to June 19 (upper users eight, lower users seven), twelve priorities in effect during the remainder of the year; Pine Creek - a rotation schedule based on accumulative flow in acre-feet; Cedar Creek - four; Deep Creek - five; Owl Creek - twenty-one; Rader Creek six; Eagle Creek - four; and Emerson Creek - four.

1969 Distribution

Watermaster service began in the Surprise Valley service area on March 19 and continued until September 30.

Jerry T. Erb, Water Resources Technician II, was watermaster during this period.

The 1969 irrigation season was very successful due to an above-normal snowpack in the Warner Mountains. Seasonal runoffs ranged between 95 and 170 percent of their long-term average.

Greater than average crop yields were experienced throughout the valley, especially by ranchers who supplemented their irrigation by ground water pumping. Several new deep wells were drilled in the valley this season.

Bidwell Creek. Total stream runoff available to Bidwell Creek users during the period April 1 through September 30 was 15,170 acre-feet or approximately 130 percent of normal.

Due to a good snowpack in Bidwell Creek Basin, enough runoff was available to supply all allotments until mid-June' (four priorities until July 10, five priorities thereafter). From then until July 1, full third priority allotments were supplied. Bidwell Creek then receded at a fairly constant rate, reaching a low of approximately four cubic

feet per second in late September. This was enough to supply only first priority allotments.

Mill Creek. Total stream runoff available to Mill Creek users during the period April 1 through September 30 was 4,840 acre-feet or approximately 95 percent of normal. From April through July, sufficient water was available to supply all third priority allotments (four priorities), with some fourth priority water available at times. From August 1 until late September the streamflow decreased steadily. At the end of the season full first priority allotments were being served.

Soldier Creek. Total stream runoff available to Soldier Creek users from March 19 through September 30 was 5,520 acre-feet, or approximately 150 percent of normal. Once the snowpack began melting in April, the stream runoff was sufficient to satisfy all priorities until June 9. Third and second priority water was available in decreasing quantities between June 10 and the middle of August, after which only first priorities were satisfied.

Pine Creek. Total stream runoff available to Pine Creek users during the period March 20 through September 30 was 2,100 acre-feet, or approximately 160 percent of normal. The stream system was operated according to the rotation schedule (on accumulated-flow basis) as set forth in the court decree. On May 23 the flow in Pine Creek dropped below 4.0 cubic feet per second, thereby ending the rotation schedule. From this date through June 4 the entire flow was diverted into the North Channel. On June 5 the creek receded to 1.6 cubic feet per second, and in accordance with the decree, the entire flow was diverted to the Bordwell Ranch via the Cressler ditch. This diversion continued for about five weeks until the water would no longer reach the place of use. From July 11 throughout the remainder of the season, Pine Creek was dry.

Cedar Creek. Total stream runoff available to Cedar Creek users from April 1 through September 30 was 3,850 acre-feet or approximately 145 percent of normal. The supply was sufficient to satisfy all allotments (four priorities) until mid-May. Third priority allotments were terminated a few days later as the flow decreased rapidly. At the end of May about 30 percent of the second priority allotments were satisfied. By the end of June only first priority water was available. A steady decrease in flow continued throughout the remainder of the season, as the creek became nearly dry in late September.

Deep Creek. Total stream runoff available to Deep Creek users from April 1 through September 30 was 6,110 acrefeet, or approximately 170 percent of normal. Since there is only one priority on North Deep Creek, the entire flow (or as much as was usable), was diverted into the Company ditch throughout the entire season. South Deep Creek supplied enough water to fill all five priorities through May 20. Thereafter, the flows declined rapidly until only first priority allotments were available by June 10. The creek continued to recede throughout the remainder of the irrigation season, with only first priority water available in steadily decreasing amounts.

Owl Creek. Total stream runoff available to Owl Creek users from April 1 through September 30 was 8.140 acrefeet, or approximately 130 percent of normal. From the first of April, flows in Owl Creek steadily increased due to melting snows until, by the second week in May, a sufficient supply existed to fill all 21 priorities. The high flows continued, reaching a maximum of 75 cubic feet per second in the middle of June. Thereafter, the creek began receding gradually. Sufficient water was available in August to supply the

first two and most of the third "special" eighth priority allotments. The flow continued to steadily decline until by the end of the season only about one cubic foot per second remained.

Rader Creek. Total stream runoff available to Rader Creek users from April 1 through September 30 was 4,180 acre-feet, or approximately 115 percent of normal. By the middle of May the melting snows had increased the flow in Rader Creek enough to satisfy all six priority allotments. By the middle of June the creek had begun to recede. This continued gradually until by the end of August only full first priority allotments were being satisfied. During the month of September only partial first priority water was available.

Eagle Creek. Total stream runoff available to Eagle Creek users from April 1 through September 30 was 6,670 acre-feet, or approximately 130 percent of normal. By the second week in May, Eagle Creek contained enough water to satisfy all four priorities. This continued until the end of June when the creek began to recede. The flows continued to steadily decline throughout the remainder of the season, and by the end of August only first priority water was available.

Emerson Creek. Total stream runoff available to Emerson Creek users from April 1 through September 30 was 4,340 acre-feet, or approximately 125 percent of normal. By the first week in May the melting snow had increased the flow in Emerson Creek to fully satisfy all four priorities. The flow began to recede at the end of May and continued gradually until the season low was reached at the end of August. Sufficient water remained in the creek throughout the remainder of the season to partially satisfy second priority allotments.

SURPRISE VALLEY WATERMASTER SERVICE AREA

TABLE 41 BIOWELL CREEK NEAR FORT BIOWELL

_Oay :	March	: April :	May:	June :	July	: August :	: September	: Qay
1	5.7	77	80	69	21	7.9	3.9	1
2 3	5.4 5.4	66 51	80 74	66 63	21 19	7.9 7.1	3.8 3.8	2
4	5.4	47	71	63	18	7.1	3.8	2 3 4 5
5	5.7	51	74	66	18	7.1	3.8	5
6	5.7	51	88	63	18	7.1	3.8	6 7
7 8	5.7 5.7	38 37	102 116	60 74	18 17	6.8 6.8	3.8 3.8	
8 9	5.7	39	135	66	16	6.5	3.8	8 9
10	5.7	44	163	60	15	6.5	3.6	10
11 12	6.0	52	188	54	14	6.0	3.6	11
13	6.0 6.0	58 56	247 208	47 44	14 14	5.7 5.7	3.6 3.6	12 13
14	6.3	51	175	42	14	5.7	3.6	14
15	6.5	49	135	39	13	5.7	3.6	15
16 17	7.9 8.3	49 63	126 130	36 34	13 12	5.7 5.4	3.6	16
18	8.3	80	151	32	12	5.4	3.6 3.8	17 18
19	7.9	77	141	31	11	4.9	3.9	19
20		85	116	30	11	4.9	3.9	20
21 22	7.5 8.7	71 120	110 106	29 28	11 10	4.6 4.6	4.1 3.9	21 22
23	13	113	110	31	10	4.6	3.8	23
24	14	99	116	29	10	4.6	3.9	24
25	16	82	113	28	9.8	4.6	3.9	25
26 27	21 30	69 63	110 92	26 26	9.4 9.0	4.3 4.1	3.9 3.8	26 27
28	38	74	80	24	8.7	4.1	3.8	28
29 30	47 58	88 88	71 71	23 22	8.7 8.3	4.1	3.9 3.9	29 30
31	77	00	74	22	8.3 8.3	4.1 3.9	3.5	31
Mean	14.7	66.3	1118	43.5	13.3	5.6	3.8	Mean
Runoff In Acre-Feet	906	3940	7250	2590	818	344	2 2 5	Acre-Feet

TABLE 42 MILL CREEK ABOVE ALL DIVERSIONS

Day : March 1 2 3 4 5	: April : 30* 26 20 17 17 15	May : 20 20 21 22 22 23	June 16 16 15 15 16	: July : 16	August : 3.8 3.5 3.5 3.3 3.3 3.3	2.2 2.2 2.2 2.1 2.2	: <u>Day</u> 1 2 3 4 5
7 8 9 10	13 12 10 12	24 25 25 25	14 16 18 15	13 13 12 11	3.0 3.0 2.8 2.7	2. 1 2. 1 2. 1 2. 2	6 7 8 9 10
11 12 13 14 15	14 16 16 18 20	25 26 26 27 27	14 12 9.0 19 38	11 11 10 10 9.0	2.7 2.7 2.7 2.6 2.5	2.2 2.1 2.1 2.1 2.1	11 12 13 14 15
16 17 18 19 20	22 25 27 30 33	28 28 27 26 25	32 31 31 33 30	8.1 7.3 7.3 6.6 6.0	2.6 2.5 2.5 2.5	2.1 2.1 2.1 2.1 2.3	16 17 18 19 20
21 22 23 24 25	38 39 38 34 25	24 22 23 25 25	27 25 26 7 24 24	5.4 5.4 5.4 5.0	2.5 2.5 2.3 2.3 2.3	2.2 2.1 2.1 2.1 2.1	21 22 23 24 25
26 27 28 29 30	20 17 17 18 19	24 22 20 18 18	22 20 19 17 16	5.0 4.1 4.1 3.8 3.8	2.3 2.3 2.5 2.5 2.3 2.3	2.1 2.1 2.1 2.1 2.1	26 27 28 29 30 31
Runoff In Acre-Feet	1310	1450	1240	543	167	127	Runolf In Acre-Feet

^{*} Beginning of Record

SURPRISE VALLEY WATERMASTER SERVICE AREA

1969 Daily Mean Discharge in Cubic Feet Per Second

TABLE 43 SOLDIER CREEK ABOVE ALL DIVERSIONS

_Oay :	March	: April :	_May :	June :	July :	August	: September	: Day
1 2		30 15	30 27	19 18	4.1	2.8 2.8 2.8	1.5 1.5 1.5 1.5	1
2 3		13	25	18	3.6 3.6	2.8	1.5	3
4 5		12 12	25 34	16 15	3.9 4.1	2.8 2.8	1.5 1.7	2 3 4 5
6 7		11	44	13	4.3	2.8	1.7	
		11 11	55 62	13 14	4.6 4.6	2.8	1.7	7 8
8 9 10		11 12	67 70	19 12	4.6 4.3 4.3	2.8 2.6 2.6	1.5 1.5 1.5	6 7 8 9 10
11		12	7.4	12	4.3	2.6		11
12 13		13 14	80 7.4	1.1	4.3	2.4	1.5	12
14		15	57	10 9.5	4.1 3.6 3.6	2.2 2.0	1.5 1.5 1.3 1.3	12 13 14 15
15		12	54	7.0		1.9	1.0	
16 17		14 26	54 55	6.7 6.7	3.6 3.6	1.7	1.0	16 17 18 19 20
18 19	3,2*	27 29	55	6.7	3.6	1.7	1.0	18
20	3.3	40	46 42	7.0 7.0	3.6 3.6	1.5 1.5	0.7 0.7	20
21	3.5	54	42	6.1	3.6	1.7	0.7	21
22 23	3.8 4.3	62 48	42 42	6.1 6.7	3.6 3.6	1.9 1.9	0.7 0.7	22 23
24 25	4.8 6.5	35 27	4 1 37	6.1 6.1	3.6 3.4	1.9 1.9	0.7 0.7	21 22 23 24 25
26	8.6	21	31		3.4	1.7	0.7	
27	1 2 16	22 41	27	5.9 5.9 5.3	3.2	1.7	0.7	26 27 28 29 30
28 29	20	44	26 26	4.8	3.0	1.5 1.5	0.7 0.7	28
30 31	28 28	40	27 21	4.6	2.8 2.8	1.5 1.5	0.7	30 31
Mean	10.9	24.5	1114191	9.9	3.7	2.1		Mean
Runoff In Acre-Feet	282	1460	2760	591	229	130	66	Runoff fn Acre-Feet

^{*} Beginning of Record

TABLE 44 PINE CREEK AT DIVISION OF NORTH AND SOUTH CHANNELS

		. , , , ,				• • • • • • • • • • • • • • • • • • • •		
Day : 1 2 3 4 5	March	: April : 36 27 20 22 22	May : 15 14 11 9.1	2.2 1.9 1.8 1.7	0.5 0.5 0.4 0.4	August :	September	: <u>Day</u> 1 2 3 4 5
6 7 8 9		16 13 13 15 18	11 11 11 12 16	1.5 1.5 1.4 1.4	0.3 0.2 0.2 0.1 0.1			6 7 8 9
11 12 13 14 15		20 22 20 16 13	20 25 18 14 12	1.3 1.3 1.3 1.2	0.0**			11 12 13 14 15
16 17 18 19 20	1.6*	12 11 12 13 26	10 9.1 9.1 9.1 7.5	1.2 1.0 1.0 1.0				16 17 18 19 20
21 22 23 24 25	1.7 1.8 2.0 3.3 3.8	40 40 27 20 15	5.5 4.5 3.8 3.5 3.3	0.9 0.9 0.8 0.8				21 22 23 24 25
26 27 28 29 30 31	5.4 9.8 14 20 32 32	12 12 20 25 20	2.8 3.3 3.1 2.8 2.8	0.7 0.7 0.7 0.6 0.6				26 27 28 29 30 31
Mēān Rūnoff Tn	ĬÓ.6	19.9	9.4	1:2	0.3		·	Mean Runoll In
Runofl In Acre-Feet	253	1190	581	71	6			Acre-Feet

⁸eginning of Record End of Flow

SURPRISE VALLEY WATERMASTER SERVICE AREA 1969 Daily Mean Discharge in Cubic Feet Per Second

TABLE 45 CEDAR CREEK AT CEDARVILLE

<u>Day</u> :	March	: April :	May:	june	: July :	August	: September	: Oay
1 2 3 4 5	4.6 4.6 4.4 4.6 4.8	41 35 30 30 31	30 28 26 25 24	11 11 9.9 9.6 9.0	4.0 3.8 3.3 3.1 2.8	1.0 1.0 0.9 0.8 0.8	0.4 0.4 0.4 0.4 0.3	1 2 3 4 5
6 7 8 9 10	4.6 4.8 4.2 4.2 4.4	28 26 25 25 25	24 24 25 26 26	9.0 8.4 8.4 8.7 8.7	2.8 2.8 2.6 2.4 2.3	0.8 0.8 0.8 0.8	0.3 0.3 0.3 0.3	6 7 8 9 10
11 12 13 14 15	4.6 4.0 4.2 4.4 4.8	28 30 31 30 28	26 27 27 27 27 25	7.8 6.7 5.9 5.9 6.2	2.0 2.0 1.9 1.8	0.7 0.6 0.6 0.6 0.5	0.3 0.3 0.3 0.3	11 12 13 14 15
16 17 18 19 20	5.2 5.9 6.2 5.9	27 29 36 35 38	24 24 23 23 23	6.2 6.2 5.6 5.6 5.6	1.6 1.6 1.4 1.5	0.5 0.5 0.4 0.4	0.3 0.3 0.3 0.3	16 17 18 19 20
21 22 23 24 25	6.5 7.8 9.6 11	40 42 42 38 34	22 22 21 20 20	5.4 5.2 5.2 5.4 5.2	1.3 1.3 1.3 1.4	0.4 0.3 0.3 0.3 0.4	0.2 0.2 0.2 0.2 0.2	21 22 23 24 25
26 27 28 29 30 31	15 22 27 32 43 44	32 30 29 30 30	18 16 14 13 13	5.2 5.2 5.0 4.8 4.4	1.3 1.2 1.2 1.1	0.4 0.4 0.4 0.4 0.4	0.2 0.2 0.2 0.2 0.2	26 27 28 29 30 31
Mean Runoff In Acre-Feet	647	1890	1380	409	120	35	17	Mean Runoff In Acre-Feet

TABLE 46
NORTH DEEP CREEK ABOVE ALL DIVERSIONS

		NORTH DEEP	CHEEN MOUTI	. MLL DITE	1310113		
Day : Ma	rch : April	: <u>May</u> :	June :	July:	August	: <u>September</u>	: Day
1 2 3 4 5	32* 22 19 21 20	18 18 18 18	8.7 8.4 7.7 7.4 7.1	1.9 1.9 1.8 1.7	1.0 0.9 0.9 0.8 0.8	0.7 0.7 0.7 0.8 0.8	1 2 3 4 5
6 7 8 9 10	18 17 16 17 17	20 22 21 21 21	6.8 6.8 7.1 7.1 6.5	1.5 1.5 1.5 1.4 1.4	0.8 0.8 0.8 0.8	0.8 0.8 0.8 0.8	6 7 8 9 10
11 12 13 14 15	18 21 21 20 21	24 24 24 21 18	6.5 5.7 5.3 4.9 4.5	1.3 1.2 1.2 1.2	0.8 0.8 0.8 0.8	0.8 0.8 0.8 0.8	11 12 13 14 15
16 17 18 19 20	22 24 26 27 27	18 16 16 16	4.2 4.0 3.6 3.6 3.4	1.2 1.2 1.2 1.2 1.2	0.8 0.8 0.8 0.8	0.8 0.8 0.8 0.9	16 17 18 19 20
21 22 23 24 25	30 33 31 24 20	13 13 12 12 12	3.2 2.8 3.2 2.8 72.6	1.2 1.2 1.2 1.2 1.2	0.7 0.7 0.7 0.7 0.7	0.8 0.8 0.8 0.8	21 22 23 24 25
26 27 28 29 30	18 18 18 18	12 11 11 10 10	2.6 2.6 2.4 2.1 2.1	1.1 1.1 1.1 1.1 1.1	0.7 0.7 0.7 0.7 0.7 0.7	0.8 0.8 0.8 0.8	26 27 28 29 30 31
Mēān Rūnoff Tn Acre-Feet	1300	1010	289	81	48	47	Mēan Rūnoff Tn Acre-Feet

^{* 8}eginning of Record

SURPRISE VALLEY WATERMASTER SERVICE AREA

TABLE 47
SOUTH DEEP CREEK ABOVE ALL DIVERSIONS

Day : M	larch : April :	May:	June :	July ;	August	: September	: Day
1 2 3 4 5	36* 25 21 22 21	24 21 20 19 20	9.0 8.0 6.9	2.6 2.6 2.5 2.3 2.0	0.6 0.6 0.6 0.6	0.3 0.3 0.3 0.3	1 2 3 4 5
6 7 8 9 10	19 17 16 17 19	24 28 31 35 38	6.2 5.1 8.5 8.0 5.0	1.9 1.9 1.9 1.9	0.6 0.6 0.6 0.6	0.3 0.3 0.3 0.3	6 7 8 9 10
11 12 13 14 15	21 24 25 26 26	40 40 36 33 30	4.9 4.1 3.7 3.5 3.3	1.9 1.9 1.8 1.7	0.6 0.6 0.6 0.6	0.3 0.3 0.3 0.3 0.3	11 12 13 14 15
16 17 18 19 20	27 28 28 28 28	28 26 25 24 22	3.2 3.2 3.0 3.0 3.0	1.5 1.5 1.4 1.2 1.1	0.6 0.6 0.5 0.5	0.3 0.3 0.3 0.3 0.3	16 17 18 19 20
21 22 23 24 25	31 37 31 26 22	20 20 19 17	2.9 2.8 3.0 2.8 2.6	1.1 1.0 1.0 1.0	0.4 0.4 0.4 0.4	0.3 0.3 0.3 0.3	21 22 23 24 25
26 27 28 29 30 31	20 21 23 25 26	16 15 14 13 12	2.8 2.8 2.8 2.8 2.8	1.0 0.8 0.7 0.6 0.6	0.4 0.4 0.4 0.4 0.4	0.3 0.3 0.3 0.3	26 27 28 29 30 31
Mean Runoff In Acre-Feet	24.5 1460	1460	271	92	32	18	Mean Runoff In Acre-Feet

^{*} Beginning of Record

TABLE 48

OWL CREEK BELOW ALLEN-ARRECHE DITCH

	U	ME CHEEK C	SELUM ALLEI	N-ANKEUNE	UTTER		
Day : March	: <u>April</u> :	May:	June :	July :	August :	September	: Day
1 2 3 4 5	17* 17 17 19 18	26 25 24 23 25	56 54 57 60 63	18 19 19 18 19	4.7 4.4 4.3 4.0 3.9	1.6 1.6 1.6 1.6	1 2 3 4 5
,6 7 8 9 10	18 14 14 15	30 39 49 45 48	63 61 59 55 49	18 16 15 15	3.7 3.5 3.3 3.0 2.9	1.5 1.5 1.4 1.5 1.5	6 7 8 9 10
11 12 13 14	18 20 21 21 20	44 73 75 60 55	46 44 44 50 52	14 14 14 13	2.7 2.6 2.5 2.3 2.3	1.5 1.4 1.4 1.3	11 12 13 14 15
16 17 18 19 20	22 28 29 26 27	60 64 63 64 59	42 39 38 33 39	11 10 10 10 9.8	2.3 2.2 2.1 2.0 1.9	1.3 1.3 1.3 1.5	16 17 18 19 20
21 22 23 24 25	35 38 34 28 23	61 65 64 70 75	36 34 33 32 28	8.9 8.5 8.1 7.9 7.3	1.9 1.8 1.7 1.6	1.3 1.3 1.2 1.2	21 22 23 24 25
26 27 28 29 30 31	21 21 25 30 28	67 58 56 60 67 64	26 23 21 19 18	6.8 6.4 5.9 5.5 5.3	1.6 1.6 1.7 1.6	1.2 1.2 1.2 1.2 1.2	26 27 28 29 30 31
Mean Runoff In Acre-Feet	1350	3290	2540	724	157	82	Mean Runoff In Acre-Feet

^{* 8}eginning of Record

SURPRISE VALLEY WATERMASTER SERVICE AREA 1969 Daily Mean Discharge in Cubic Feet Per Second

TABLE 49
RADER CREEK ABOVE ALL DIVERSIONS

_Day :	March : April	: May	: June	: July	: August	: September	: Day
1 2 3	12* 9.2	10 9.8	36 36	8.0 8.0	2.5 2.5 2.4	1.0 0.9 0.9	1 2
4 5	9.2 7.5 7.2 6.2	9.2 8.5 9.0	36 40 39	8.2 8.0 7.8	2.4 2.3 2.3	0.9 0.9 0.9	3 4 5
6 7	4.8 4.8 5.5 5.1	1 2 1 7	36 36	7.7 7.5	2.2 2.1	0.8	6 7
8 9 10	5.5 5.1 5.5	19 22 24	34 31 28	7.2 7.0 6.8	2.1 2.0 2.0	0.8 0.8 0.8	8 9 10
11 12	6.7 7.0	34 36	27 27	6.7 6.5	1.9 1.9	0.8	11 12
13 14 15	6.8 6.7 6.3	38 32 30	27 25 23	6.3 6.3 5.5	1.8 1.8 1.7	0.7 0.7 0.7	13 14 15
16 17	6.3	30 34	23 21	5.0 4.7	1.7 1.6	0.7	16 17
18 19 20	8.0 9.2 12	39 38 30	21 20 20	4.4 4.1 3.9	1.6 1.5 1.4	0.7 0.8 0.8 0.8	18 19 20
21 22	14 18	30 34	19 18	3.8 3.7	1.4	0.7 0.7	21 22 23
23 24 25	18 14 10	36 43 43	17 16 15	3.6 3.5 3.3	1.3 1.2 1.2	0.7 0.7 0.7	23 24 25
26 27	10 10	40 35	13	3. 1 3. 1	1.2	0.7 0.7 0.7	26 27 28
28 29	10 10	31 30	9.8 9.0	3.0 2.8	1.2	0.7 0.7	29
30 31 Mean	10	35 40 28.3	8.5 <u>24.</u> [2.7 <u>2.6</u> 5.3	1.1 1.0 1.7	0.7	30 31 Mean
Runoff In Acre-Feet	532	1740	1430	327	105	46	Runoff In Acre-Feet

^{*} Beginning of Record

TABLE 50

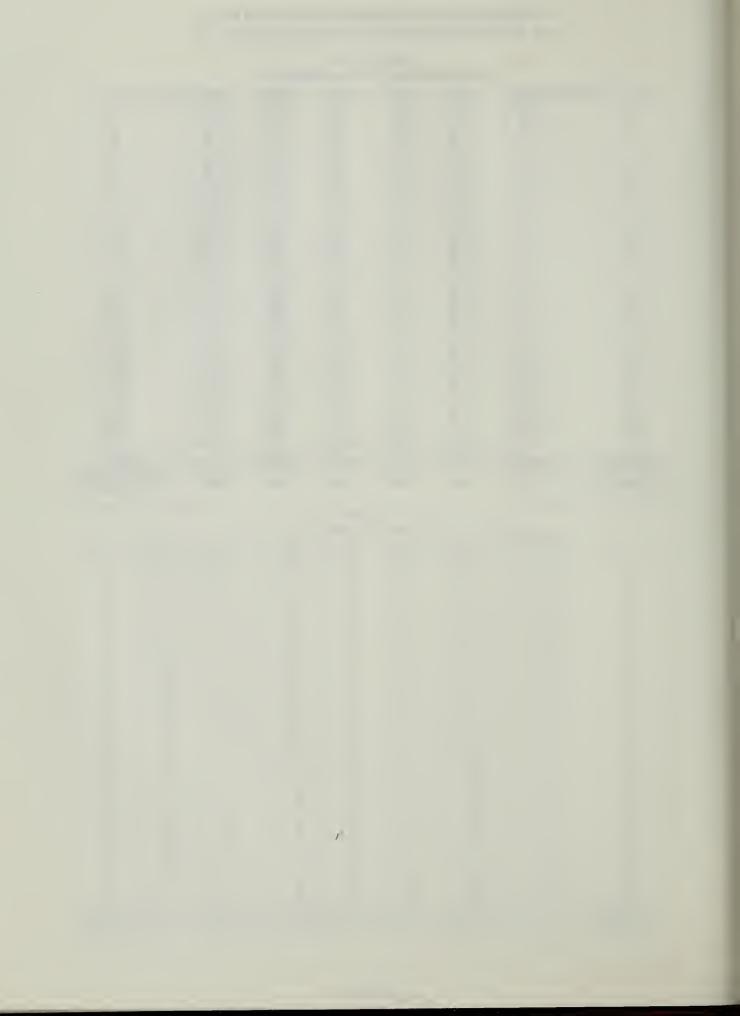
				EAGLE	CREEK AT	EAGLEVILLE			
	Day :	March	: April :	May :	June	: <u>July</u> :	August	: September	: Day
	2	3.3	15 13	19 17	39 40	26 27	10 11	2.8 2.8	2
	3	3. 2	11	17	42	27	11	2.6	3
	2 3 4 5	3.3 3.3 3.2 3.2	10 11	16 17	43 45	27 27	10 9.0	2.6 2.6	2 3 4 5
	6 7	3.1	9.0	18	48	25	9.0	2.6	
		3. 1 3. 1	8.2 8.2	13 28	45 44	23 22	9.0 8.2	2.6 2.5	6 7 8 9 10
	8 9	3.0	8.2	36	43	21	8.2	2.5 2.5	9
	10	3.0		40	42	20	8.2		
	11 12	3.0 3.0	9.7 12	42 48	4 1 40	19 18	6.0 5.5	2.5 2.5	11
	13	2.9	11	53	42	17	5.2	2.4	13
	14	2.9 2.9 2.9	9.7 9.7	51	38 37	16 16	5.2 5.2 5.5	2.3 2.3	12 13 14 15
	15 16		9.7 9.7	35 35	36	15		2.3	
	17	2.9 2.8	11	36	35	14	5.2 4.5 4.5	2.4	16 17
	18	2.8	14	42	35	14	4.5 4.5	2.3 2.1	18 19
	19 20	2.8 2.8	15 17	40 40	36 37	13 13	4.5	2.1	20
	21	2.8 3.2	19	39	35	12	4.2	2.1	21
	22 23	3.2 3.4	20 20	40 41	34 33	11 10	4.2 3.6	2.1 2.1	22 23
	24	3.6 4.2	19	36	32	9.7	3.6	2.1	21 22 23 24 25
	25		16	39	y 31	10	3.6	1.9	
	26 27	5.5 7.7	14 15	41 39	29 29	11 12	3.4 3.2	2.0 2.0	26 27 28 29 30 31
	28	9.0	14	38	28	12	3.0	1.9	28
	29	11 16	17 19	39 43	27 26	12 12 12	3.0 3.0	1.9 1.9	29 30
	30 31	18		42			3.0		
	Mean	4.7	13.1	34.8	37.1	16.9	5.9	2.3	Runoff In
nun Nor	off [n e-Feet	287	781	2140	2210	1040	361	137	Acre-Feet

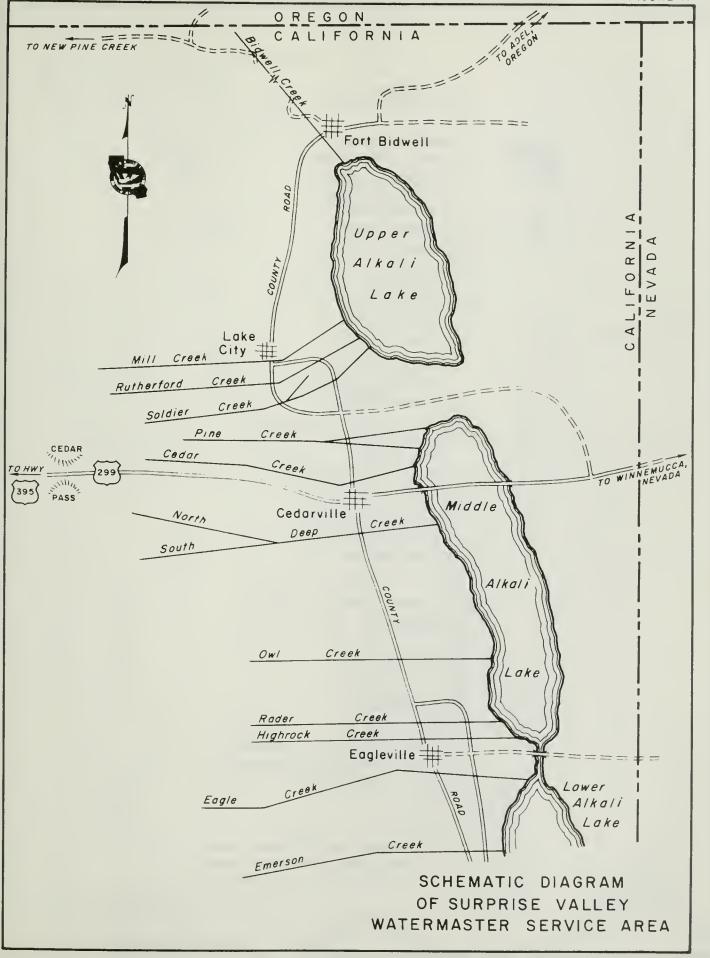
SURPRISE VALLEY WATERMASTER SERVICE AREA

TABLE 51
EMERSON CREEK ABOVE ALL DIVERSIONS

Oay : March	: April :	May:	June :	July :	August :	September	: Day
1	18*	21	20	7.8	4.4	3.4	1
2 3	18 16	22 24	20 20	8.4 7.8	4.4 3.9	3.4 3.4	2
4	16	26	19	7.8	3.9	3.4	4
5	16	28	19	7.8	3.9	3.4	5
6	14	29	19	7.8	3.9 3.9 3.9 3.9	3.4	6 7
7	12 11	31 33	19 19 19	7.2 7.2 7.2	3.9 3.9	3.4 3.4	7
8 9	10	35	19	7.2	3.9	3.4	8 9 10
10	10 9.0	35	19	6.6	3.9	3.4	10
11	9.6	34	18	6.6	3.9	3.4	11
1 2 13	11 11	33 32	17 16	6.6 6.6	4.4 3.9	3.4 3.4	12 13
14	11	31	16	6.6	3.9	3.4	14 15
15	9.6	30	16	6.1	3.9	3.4	
16	9.0	29	16	5.5	3.9	3.4	16
17 18	1 I 1 3	29 28	16 16	5.5 4.9	3.9	3.4 3.4	17 18
19	15	28	16	4.9	3.9 3.9	3.9 3.9	19
20	17	26	15	4.9	3.9	3.9	20
21	19	26	15 14	4.4	3.4	3.9	21 22 23 24 25
22	2 2 2 1	26 27	14 14	4.4	3.4 3.4	3.4 3.4	22
23 24 25	20	28	12	4.4	3.4	3.4	24
25	19	28	12	4.4	3.4	3.4	25
26	19	28 26	11	4.4	3.4	3.4	26 27 28 29
27	19 18	26 24	11 9.0	4.4	3.4 3.4	3.4 3.4	27
28 29 30	18	22	8.4	4.4	3.4	3.4	29
30	19	21	8.4	4.4	3.4	3.4	30 31
31 Mean	15.0	20 27.7	15.7	<u>4.4</u>	3.4	3.4	Mean
Runoffin	895	1710	932	361	233	205	Runoffin
Acre-Feet	027	1710	332	301	200	200	Acre-Feet

^{* 8}eginning of Record

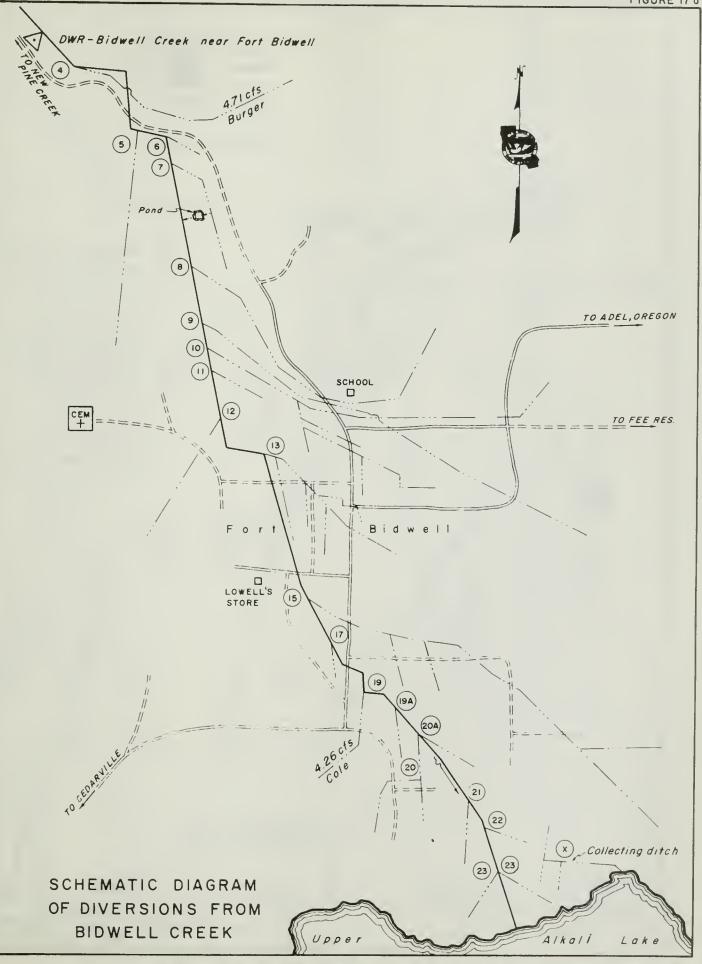


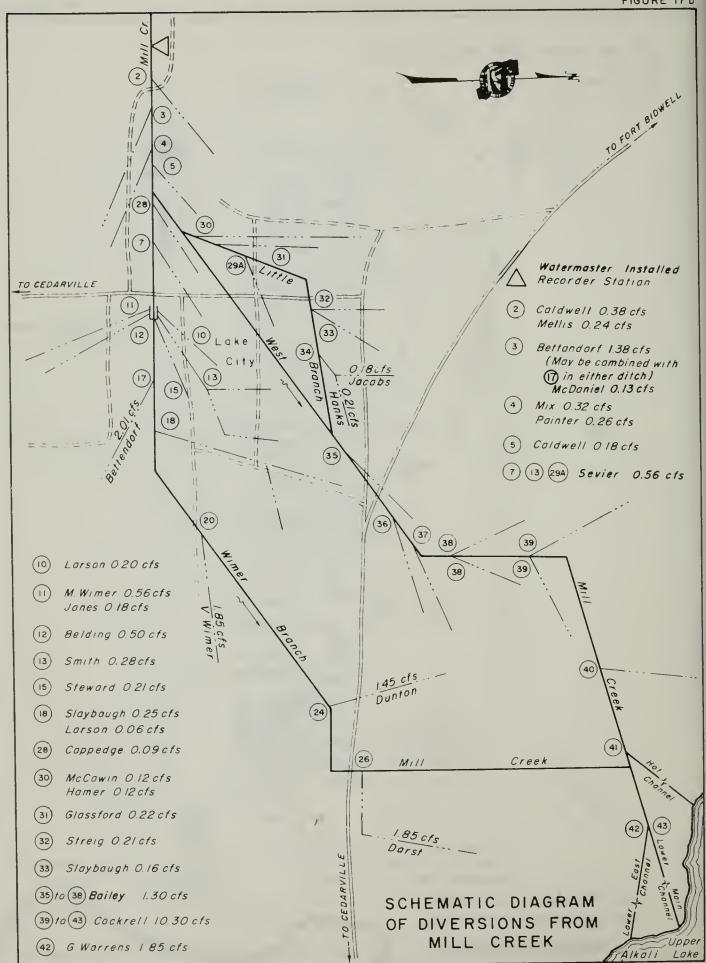


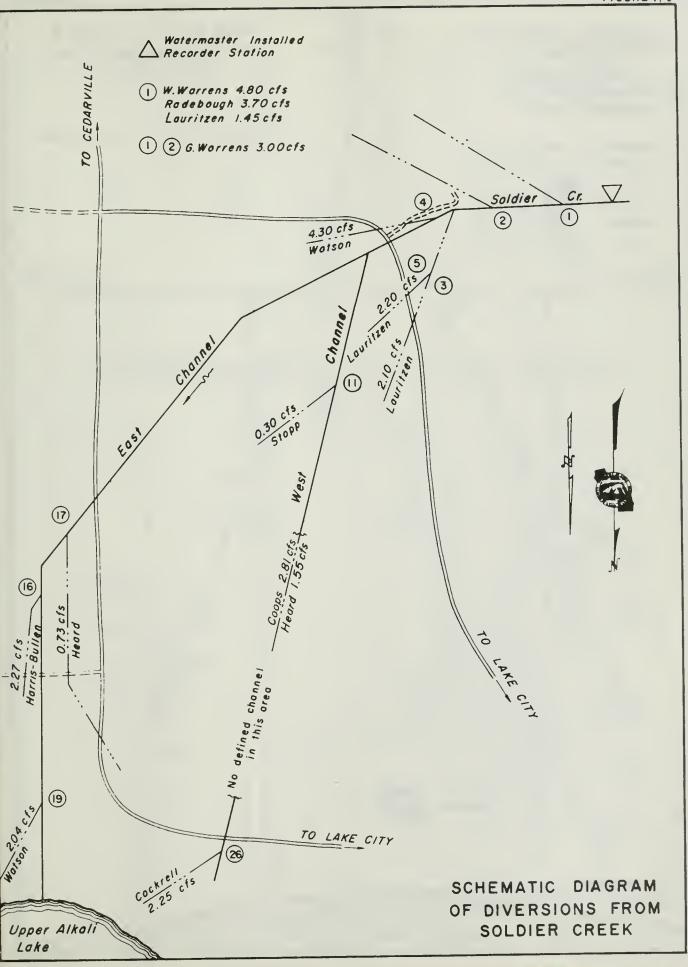
Morch 15 through July 9 (major season of use)

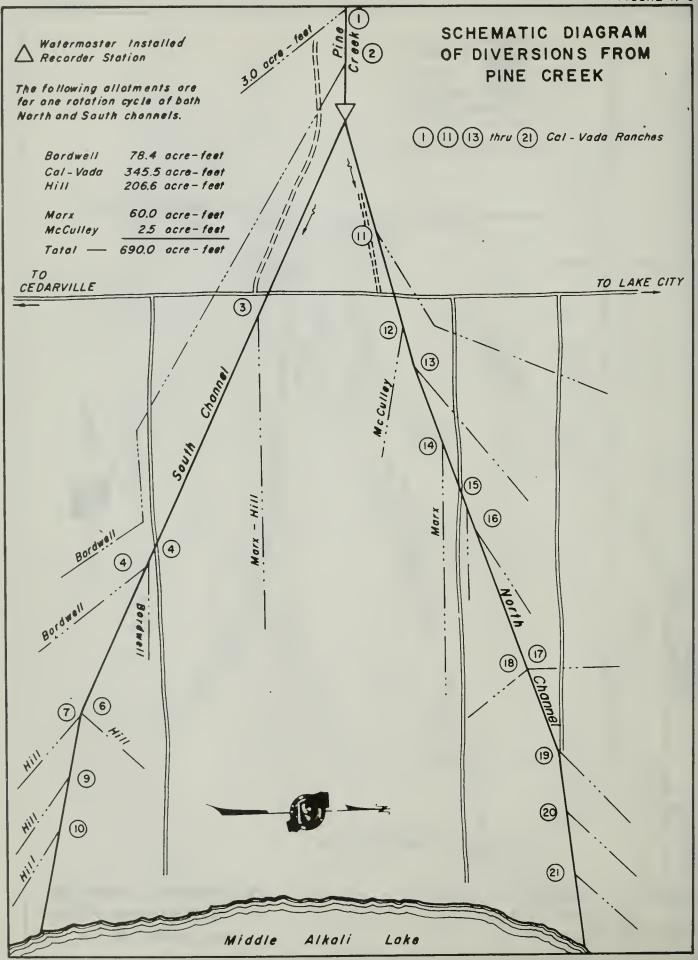
- 5 G. Peterson 0.38cfs C. Bucher 0.45cfs Sweeney 0.07cfs
- 6 Sweeney O.18cfs
- 7 G. Peterson 0.50 cfs
- 8 McConnaughy 7.24 cfs*
 Town Users 0.06 cfs
- 9 Conion 7.63 cfs Town Users 0.22 cfs
- (10) Cerey 6.13 cfs C.Bucher 0.66 cfs P. Peterson 0.44 cfs Town Users 0.30 cfs
- (II) C. Bucher 0.38 cfs
- (12) U.S. Indian Service 0.46 cfs Green 0.14 cfs Baty 0.12 cfs
- (13) McConnaughy 5.24 cfs*
 Town Users 0.44 cfs
- 15 Fee 8.94 cfs Sagehorn I.34 cfs O'Callaghan 2.88 cfs Toney 0.42 cfs
- (17) Kober 0.05 cfs
- (20) Sagehorn O.88 cfs
- (19A) (20) (20A) Corey 1.43 cfs
- (21) Sagehorn 1.39 cfs
- (22) O'Callaghan 0.38 cfs
- (23) Sagehorn 1.79 cfs
- (x) Sagehorn If flow is less than 3.82 cfs, deficiency is made up by additional diversion through (15) if Fee Ranch allotment is satisfied.
- * Moy be used in either ditch

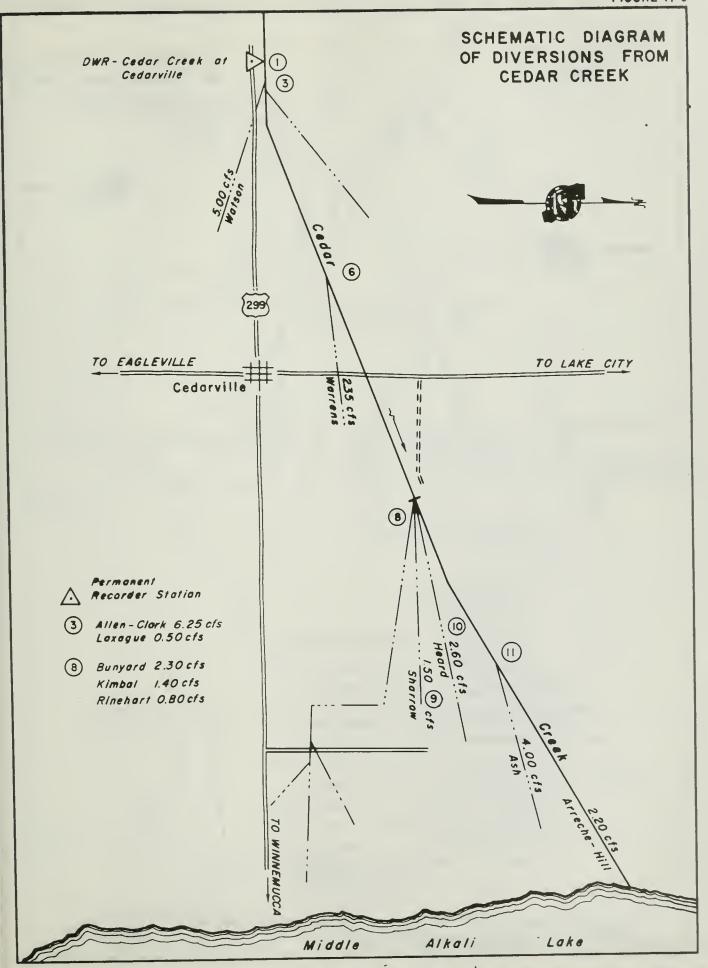
NOTE: Sagehorn and O'Callaghan waters may be used in any of their ditches at discretion of user and watermaster.

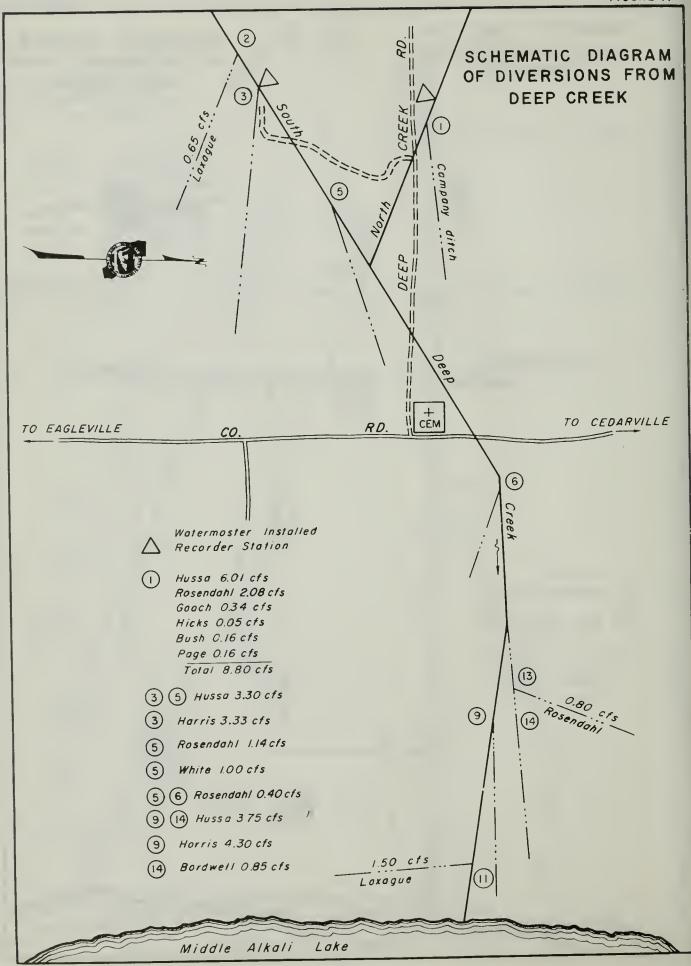


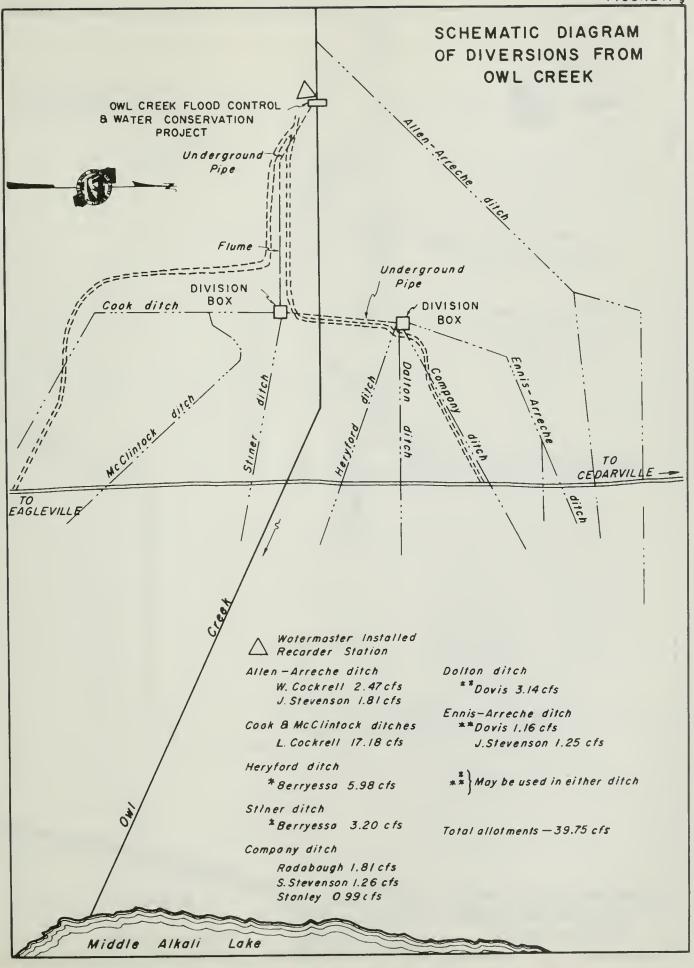


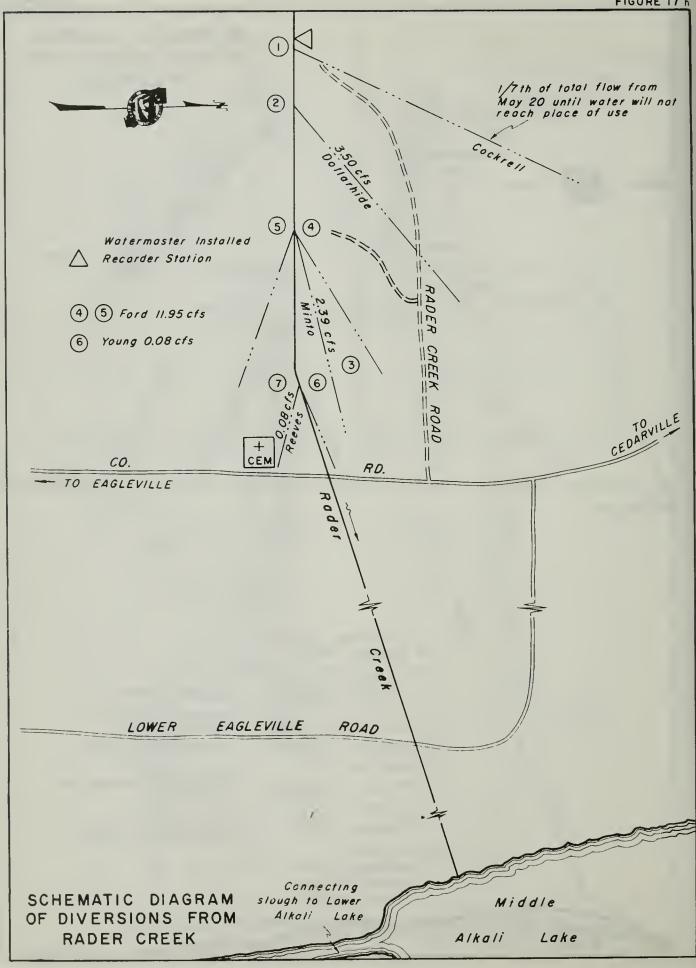


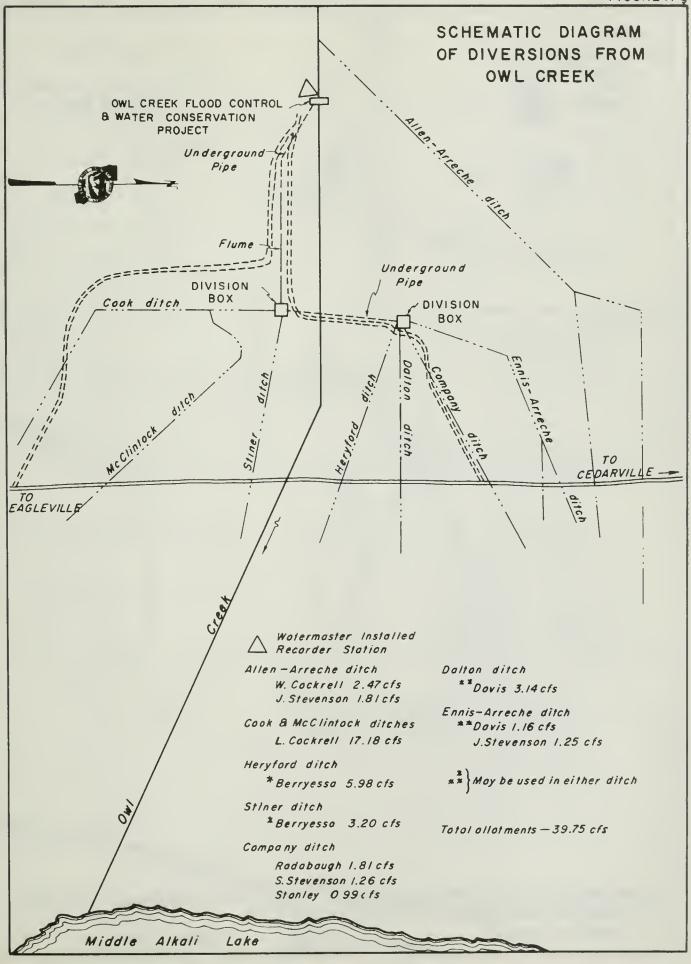


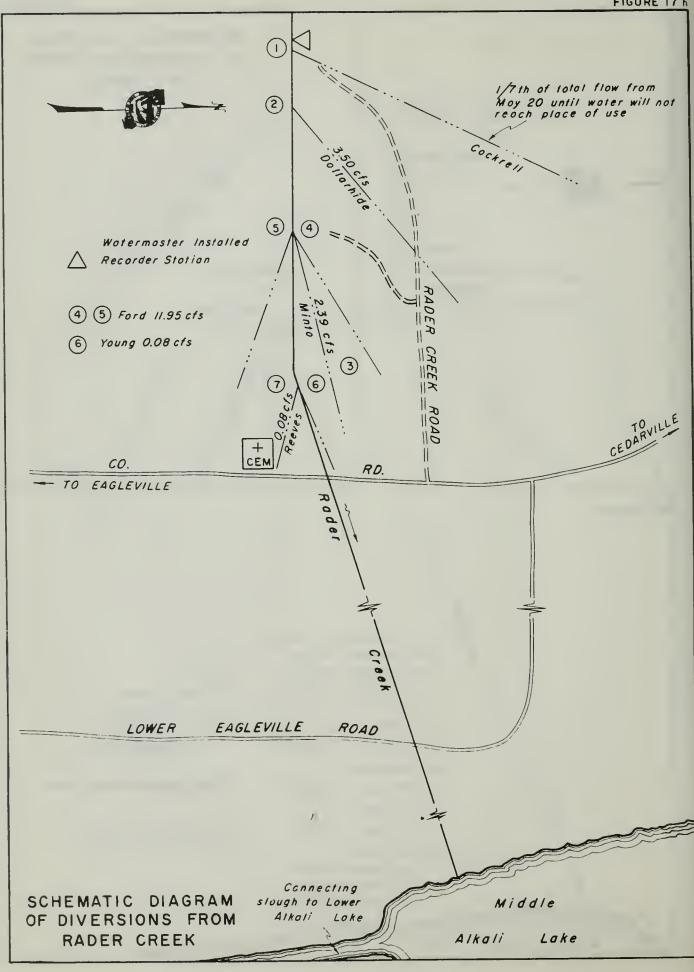


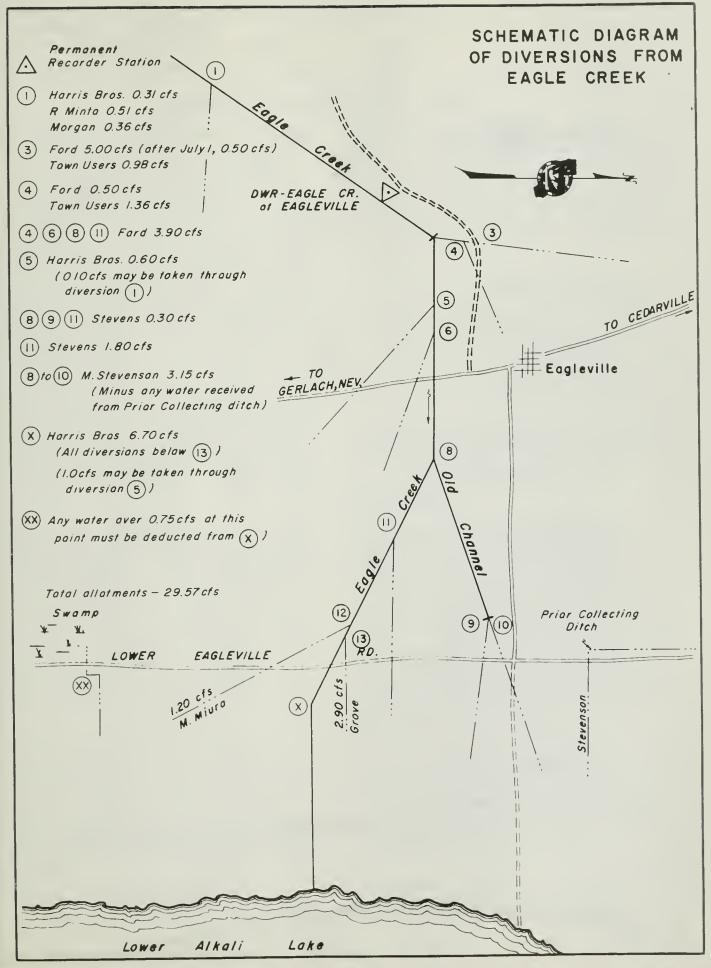


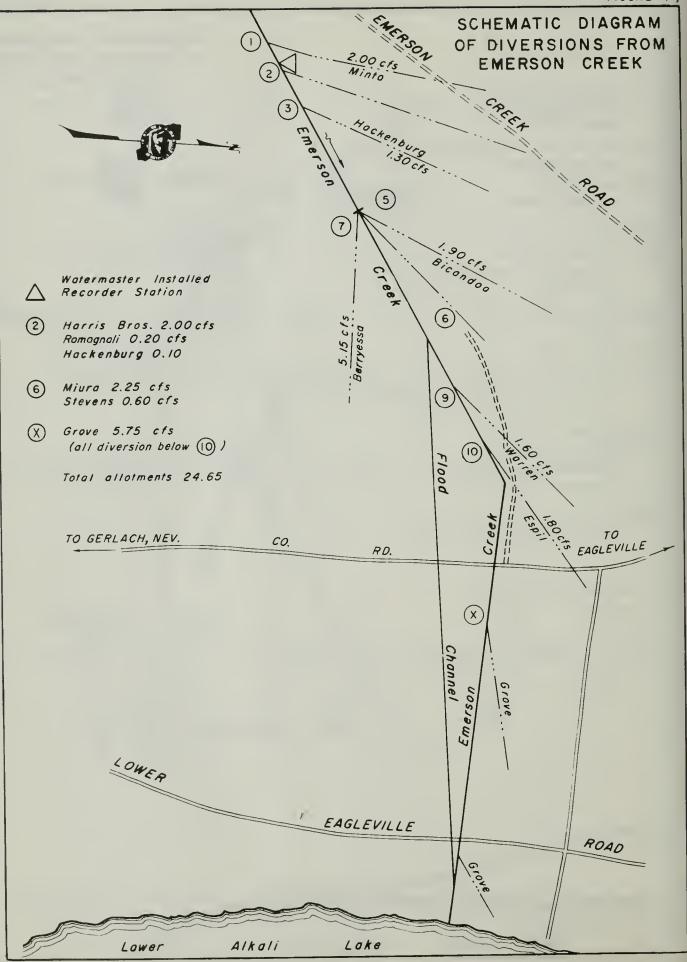












Susan River Watermaster Service Area

The Susan River service area is located in the southern part of Lassen County in the vicinity of Susanville. There are 163 water right owners in the service area with total allotments of 351.732 cubic feet per second. The primary place of use is in Honey Lake Valley between Susanville and the northwest shore of Honey Lake, a distance of about 25 miles. The valley floor is at an elevation of about 4,000 feet. The source of supply is comprised of three stream systems: Susan River and tributaries, Baxter Creek and tributaries, and Parker Creek.

Susan River originates on the east slope of the Sierra Nevada immediately east of Lassen National Park at an elevation of about 7,900 feet. Its channel runs easterly from Silver Lake through McCoy Flat Reservoir, the town of Susanville, and then to Honey Lake.

Susan River has four major tributaries: Piute Creek, entering from the north at Susanville; Gold Run and Lassen Creeks, entering from the south between Susanville and Johnstonville; and Willow Creek, entering from the north above Standish. Gold Run and Lassen Creeks rise on the north slope of Diamond Mountain at an elevation of about 7,600 feet. The watersheds of Piute and Willow Creeks are on the south slopes of Round Valley Mountain at lower elevations.

A short distance below its confluence with Willow Creek the Susan River divides into three channels: Tanner Slough Channel on the north, Old Channel in the middle, and Dill Slough Channel on the south. Hartson Slough and Whitehead Slough divert from Dill Slough on its south bank farther downstream.

The Baxter Creek stream system is located in Honey Lake Valley on the east

slope of the Sierra Nevada Mountains, about 10 miles southeast of Susanville. The principal creeks in the system are: Baxter Creek, which rises in the extreme western portion of the basin and flows in an easterly direction, and Elesian, Sloss, and Bankhead Creeks, which are tributaries of Baxter Creek from the south.

Parker Creek is situated in Honey Lake Valley on the east slope of the Sierra Nevada Mountains about 15 miles southeast of Susanville. It rises on the east slope of Diamond Mountain and flows in an easterly direction for about 5 miles into Honey Lake.

A schematic drawing of each major stream system within the Susan River service area is presented as Figures 18 through 18e, pages 147 through 154.

Water Supply

The water supply in the Susan River service area is obtained from two major sources, snowmelt runoff and springs. Snowpack on the Willow Creek Valley and Piute Creek watersheds, which embrace more than one-half of the Susan River stream system, melts early in the spring and is usually depleted by May 1. Irrigation requirements from this portion of the stream system are then almost entirely dependent on the flow of springs that are relatively constant throughout the year.

Under average flow conditions, Lassen, Gold Run, Baxter, and Parker Creeks, and Susan River above Susanville are sustained by snowmelt runoff until early June. The flow from perennial springs in this portion of the system is comparatively small.

The Lassen Irrigation District stores supplemental water in Hog Flat and McCoy Reservoirs, located on the

headwaters of the Susan River. This stored water is released into the Susan River Channel and commingled with the natural flow, usually during June and July. It is then rediverted into Lake Leavitt for further distribution by the irrigation district.

Records of daily mean discharge of the several stream gaging stations in the service area are presented in Tables 52 through 57, pages 144 through 146.

Methods of Distribution

Irrigation in the Susan River service area is accomplished by placing dams in the main channels, thus raising the water level for subsequent diversion into canals and ditches. These diversion dams are relatively large on the Susan River Channel and much smaller on the tributaries. Wild flooding is the most common method of irrigation in practice. Portions of the irrigated lands have been leveled, permitting a more efficient use of water by using border checks and furrows. Subirrigation occurs in some areas incidental to surface irrigation or as a result of seepage from ditches and creek channels.

The Lassen Irrigation Company is entitled to divert or store up to the present capacity of its reservoirs from the natural flow of Susan River between March 1 and July 1 of each year when the flow of Susan River immediately above Willow Creek is more than 5 cubic feet per second in spite of the allotments granted to users in Schedules 3 and 6 and to users of third priority class in Schedule 5 of the Susan River decree. When the flow of the Susan River immediately above Willow Creek is below the required amount, the watermaster then measures the inflow to McCoy Flat Reservoir, and if available, releases the amount required. A transportation loss of 15 percent, or a minimum of two cubic feet per second, is deducted from all water that is

transferred from Lassen Irrigation Company upstream storage reservoirs to Lake Leavitt.

The several decrees (see Table 1) which apply to the Susan River service area establish the following number of priority classes for the major stream systems and distribution areas: Baxter Creek - five; Parker Creek - four; Gold Run Creek - three; Lassen Creek - two; Piute and Hills Creek - one; Willow Creek - two; and Susan River - three. Geographical features are such that the Susan River, Willow Creek and Lower Susan River areas are subject to interrelated priorities.

1969 Distribution

Watermaster service began in the Susan River service area on April 1 and continued until September 30. Lester Lighthall, Water Resources Technician II, was watermaster during this period.

The available natural water supply throughout the service area was well above average. Snow survey measurements showed about 200 percent of normal for the Susan River watershed. Many ranchers in the area reported an above-average hay crop, with some getting as many as four cuttings of alfalfa.

Parker Creek. The available water supply in Parker Creek was sufficient to satisfy all allotments (four priorities) until July 1. From July 1 to July 20 the flow decreased rapidly to first priority allotments. From July 20 throughout the remainder of the season only first priority allotments were served.

Baxter Creek. The available water supply was sufficient to satisfy third priority allotments (a total of five priorities) until June 16. The flow decreased from June 26 to July 7 when approximately 50 percent of second priority allotments were supplied. The flow at Diversion No. 75 dropped to 1.0 cubic foot per second on August 20. In

accordance with the decree, all of the flow at this point was diverted into Long ditch for stockwater use. From August 20 throughout the remainder of the season only stockwater allotments were served.

Lassen-Holtzclaw Creeks. The available water supply in Lassen-Holtzclaw Creeks was sufficient to meet all allotments (two priorities) until July 12. The flow decreased to first priority allotments on August 15. From August 15 throughout the remainder of the season the Tangeman Ranch was entitled to all of the water available in the stream.

Hills Creek. The available water supply in Hills Creek was sufficient to supply all allotments (one priority) until July 19. After that date the flow decreased until by August 27, and continuing until September 30, only stockwater was available to the Amesbury Ranch. Storage facilities on the creek, filled by the spring runoff, showed no appreciable depletion until the middle of June.

Gold Run Creek. The available water supply in Gold Run Creek was sufficient to supply all allotments (three priorities) until July 20. Between July 21 and August 9, the flow decreased steadily. After August 10 the flow remained reasonably constant at about 10 percent of second priority allotments.

Piute Creek. The available water supply in Piute Creek was sufficient to satisfy all allotments (one priority) and provide a small surplus flow to the Susan River throughout the season.

Willow Creek. The available water supply in Willow Creek was sufficient to supply all allotments (two priorities) throughout the season. Heavy growth of moss, weeds, etc., in the creek caused an annual drainage problem during the

haying season. With the aid of chemicals and two pumps, this problem has been reduced considerably.

Susan River. The available water supply in the Susan River was sufficient to supply all allotments in Schedule 6 (three priorities) until June 26. As the flow receded, Schedule 6 was terminated for the season. All allotments in Schedule 3 (two priorities - Lower Susan River area) were satisfied until mid-July. Throughout the remainder of the season there was enough water for about 55 percent of second priority allotments in this schedule.

All allotments in Schedule 5 (three priorities - Upper Susan River area) were satisfied until June 30. The flow receded until August 26 when there was enough water for about 15 percent of the second priority allotments. Throughout the remainder of the season the flow remained constant.

Lassen Irrigation Company Reservoirs.
The Susan River decree allows the Lassen Irrigation Company's McCoy Flat and Lake Levitt Reservoirs to store surplus water during the winter and spring months.
Once filled, or if a shortage occurs among downstream water right owners, the natural flow in the Susan River above McCoy Flat Reservoir must be released.

During spring runoff the above reservoirs filled to capacity. Shortages began to occur in early July, so controlled releases began on July 3. The company requested that their required releases (equal to the inflow) from McCoy Flat Reservoir be made from their downstream Hog Flat Reservoir instead. This arrangement was acceptable. The company added this amount to their normal Hog Flat Reservoir releases which transfer water to Lake Leavitt during the winter months.

SUSAN RIVER WATERMASTER SERVICE AREA 1969 Daily Mean Discharge in Cubic Feet Per Second

TABLE 52 SUSAN RIVER AT SUSANVILLE

Oay :	March	: April	: <u>May</u> :	June	: July :	August	: September	: Day
1	59	730	817	248	32	61	6.5	1
2	53	568	798	250	30	64	29	2
3	55	476	774	239	28	60	53	3
4	54	456	674	235	36	57	59	4
5	53	512	877	228	48	53	56	5
6	57	432	752	213	51	50	62	6
7	53	376	837	196	47	48	58	7
8	53	364	903	232	46	41	55	8
9	49	376	971	237	62	37	56	9
10	52	392	1010	210	85	32	57	10
11	59	432	1040	219	88	29	58	11
12	52	500	1150	196	85	26	57	12
13	47	500	1120	180	82	25	57	13
14	46	448	1010	176	81	22	56	14
15	49	388	910	166	79	19	57	15
16 17 18 19 20	63 85 102 99	396 439 553 510 537	838 808 778 718 850	152 144 104 90 78	91 102 101 99 97	18 17 15 14 13	33 15 11 11 10	16 17 18 19 20
21	98	608	476	65	96	12	11	21
22	125	704	400	59	94	9.9	10	22
23	166	719	351	56	1 05	8.1	9.7	23
24	170	605	330	53	1 04	6.5	9.3	24
25	186	523	285	48	1 02	8.5	8.6	25
26 27 28 29 30 31	228 300 396 480 605 862	492 479 534 822 847	270 285 250 224 230 243	46 44 42 40 36	99 99 97 96 72 63	6.7 6.6 6.7 6.7 6.7	7.9 7.4 7.4 7.4 7.1	26 27 28 29 30 31
Mean Runoff In Acra-Feat	9630	31180	40820	8490	4750	1550	1870	Mean Runaff In Acre-Feet

TABLE 53 GOLO RUN CREEK NEAR SUSANVILLE

Day : Mar 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20	88* 78 31 27 26 25 22 18 18 18 19 25 29 29 26 25 31 60 71	78	107 100 94 88 88 76 69 60 39 42 36 31 34 29 25 23 21 118	July :	August : 3.0 3.0 2.8 2.8 2.5 2.5 2.5 2.4 2.4 2.1 2.1 2.0 2.0 2.0 2.0 2.0 2.0 1.7	September 1.2 1.2 1.2 1.2 1.2 1.2 1.2 1.1 1.1 1.	: Day 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20
21 22 23 24 25 26 27 28 29	107 150 120 71 39 29 19 31 64 63	ŗ	17 16 15 15 14 13 12 11 10	4.7 4.3 4.3 4.2 4.1 3.9 3.9 3.5 3.5	1.7 1.4 1.4 1.4 1.4 1.4 1.2 1.2	1.1 1.1 1.1 1.1 1.1 1.1 1.2 1.2 1.2	21 22 23 24 25 26 27 28 29
30 31 Mean Runoff In Acre-Feet	2 86 0	2	40.4	3.2 6.2	1.2	68	30 31 Mean Runoff In Acre-Feet

^{*} Beginning of Record ** End of Record

SUSAN RIVER WATERMASTER SERVICE AREA 1969 Oaily Mean Discharge in Cubic Feet Per Second

TABLE 54
SUSAN RIVER AT JOHNSTONVILLE BRIDGE

<u>Day</u> :	March :	April	: May	: June	: July	: August	: September	: Day
1 2		*			24 21 14	3.2 4.3		1
2 3 4 5					14	4.3	0.9 0.8 3.0 1.8	2 3 4 5
4 5					12 24	4.0 3.5 2.3	1.8	4
					25	3.5		
7					30	3.4 3.3	0.9	7
6 7 8 9 10					28 30	3.3 3.2	0.9 n a	6 7 8 9 10
					26	3.1	1.0 0.9 0.9 0.9 0.8	10
11 12 13					26	3.0 2.9 2.8 2.7 2.6	0.9 0.9 0.9 0.9	11
13					19 15	2.9	0.9 0.9	12 13
14 15					16 18	2.7	0.9	14 15
16 17					11	2.0	0.9	
17					12	2.5 2.4 2.3 2.2 2.1	0.9 1.0 1.0 0.9 0.9	16 17
1 8 1 9 20				100	14 13	2.3	1.0 n q	18 19
				100 90	13		0.9	20
21 22 23 24 25				80 71	12 8.2	2.0	0.9 0.9 0.7	21
23				62	11	2 1.9 1.8	0.9	22
25				54 46	11 6.1 9.0	1.7	0.7	21 22 23 24 25
26				44	24	1.5		
26 27 28 29				36 36	37	1.4	0.8 0.9	26 27
29				37 30	35 28	1.3 1.2	0.9 1.0 1.0	28 29
30 31				30	11	1.0	1.0	28 29 30 31
Mean					11 18.7	1.0	0.1	Mean 31
Mean Runoff In Acre-Feet					1150	150	59	Mean Runoff In Acre-Feet

^{*} Beginning of Record (Mean daily flow from April 1 to June 18 was in excess of 100 cfs).

TABLE 55
WILLOW CREEK NEAR SUSANVILLE

			WILLU	n CREEK P	HEAR SUSANY	ILLE		
<u>Oay</u> :	March	: April	: May :	June	: July	August	September	: Day
1 2 3 4 5	60 58 56 54 55	299 225 198 170 185	60 55 53 55 51	13 13 13 13	14 14 14 16 20	24 23 23 21 21	10 10 10 10 10	1 2 3 4 5
6 7 8 9	54 53 54 51 50	169 149 140 134 124	47 45 43 42 42	13 13 13 15 16	20 20 26 25 27	19 19 18 18	10 10 10 10	6 7 8 9 10
11 12 13 14 15	51 50 53 49 47	115 110 109 105 100	42 45 49 41 36	16 16 15 15	25 24 25 25 24	16 15 15 15 14	10 10 10 10 10	11 12 13 14 15
16 17 18 19 20	47 57 95 118 123	90 87 89 84 82	36 35 32 30 28	20 19 18 18 17	24 24 23 22 22	13 12 12 13	10 10 11 11 13	16 17 18 19 20
21 22 23 24 25	120 168 213 228 254	81 78 76 86 82	27 26 25 24 22	17 16 15 15	23 23 23 23 23	12 12 12 12 12	13 13 14 14	21 22 23 24 25
26 27 28 29 30	294 328 351 360 365	76 73 70 68 64	21 21 20 19 15	14 15 15 14 14	23 23 24 24 24 24	12 12 11 11 11	14 15 15 15	26 27 28 29 30 31
Mean Runoff In Acre-Feet	8490	6980	2180	906	1370	932	688	Mean Runoff In Acre-Feet

SUSAN RIVER WATERMASTER SERVICE AREA

1969 Daily Mean Discharge in Cubic Feet Per Second

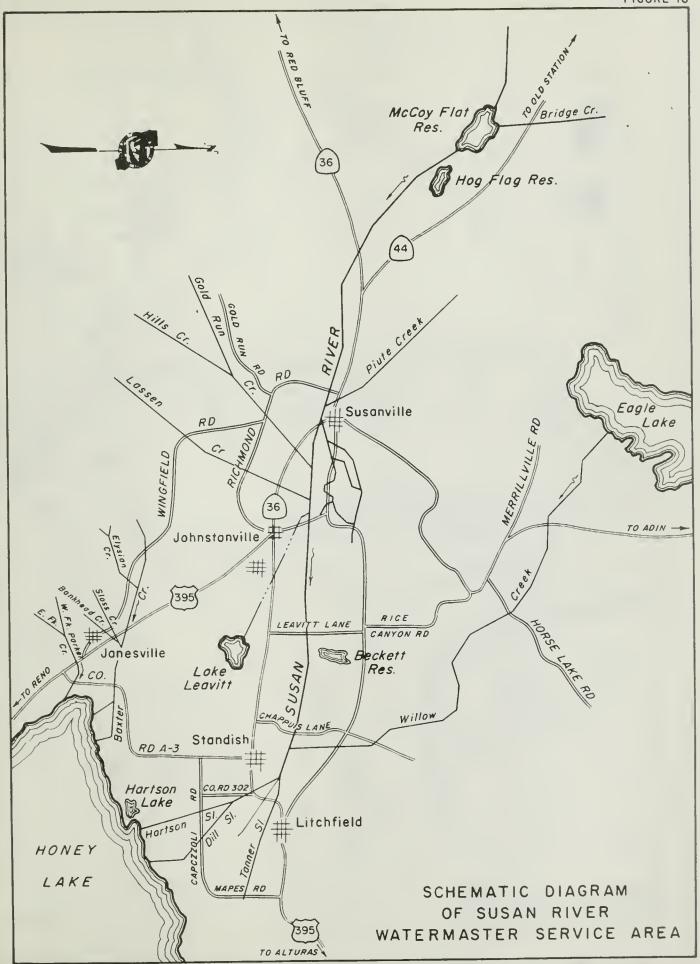
TABLE 56
WILLOW CREEK NEAR LITCHFIELD

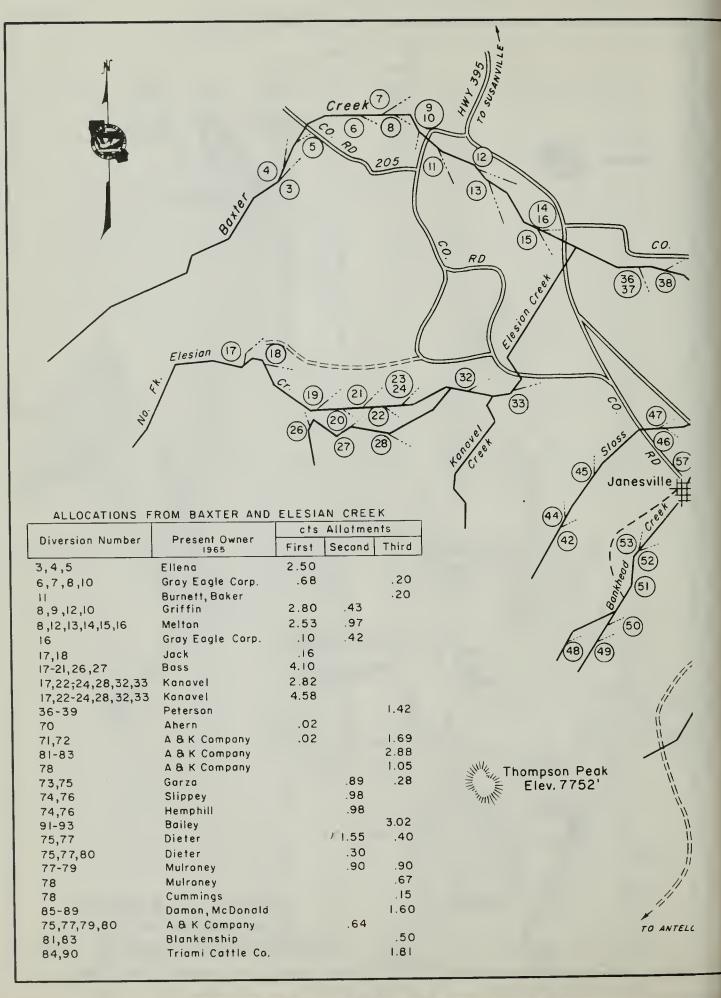
Day : Ma	rch : April :	May:	June :	: July :	August	: September	: Day
1 2 3 4 5	*	78 73 68 73 68	18 18 18 17	19 20 20 20 20 24	30 29 28 28 28	18 17 17 17 17	1 2 3 4 5
6 7 8 9		60 56 54 52 52	19 19 19 21 21	26 26 27 31 31	28 27 27 26 25	17 17 17 17 17	6 7 8 9
11 12 13 14		52 54 60 53 46	22 22 21 20 23	29 29 30 29 29	24 23 22 22 21	17 17 17 17 17	11 12 13 14 15
16 17 18 19 20		45 44 42 38 35	26 25 23 22 22	29 29 29 28 28	20 19 18 19 19	17 17 18 19 20	16 17 18 19 20
21 22 23 24 25	102	34 32 31 30 28	21 20 20 20 20 18	28 29 29 29 29	19 18 18 18 19	21 21 21 21 21 21	21 22 23 24 25
26 27 28 29 30 31	96 90 87 86 82	28 27 26 25 20	18 18 19 19	29 29 29 30 30	18 19 19 19 19	21 21 21 21 21	26 27 28 29 30 31 Mean
Runoff In Acre-Feet		19 45.3 2780	1200	30 27.5 1690	1360	1100	Mean - Runoff In Acre-Feet

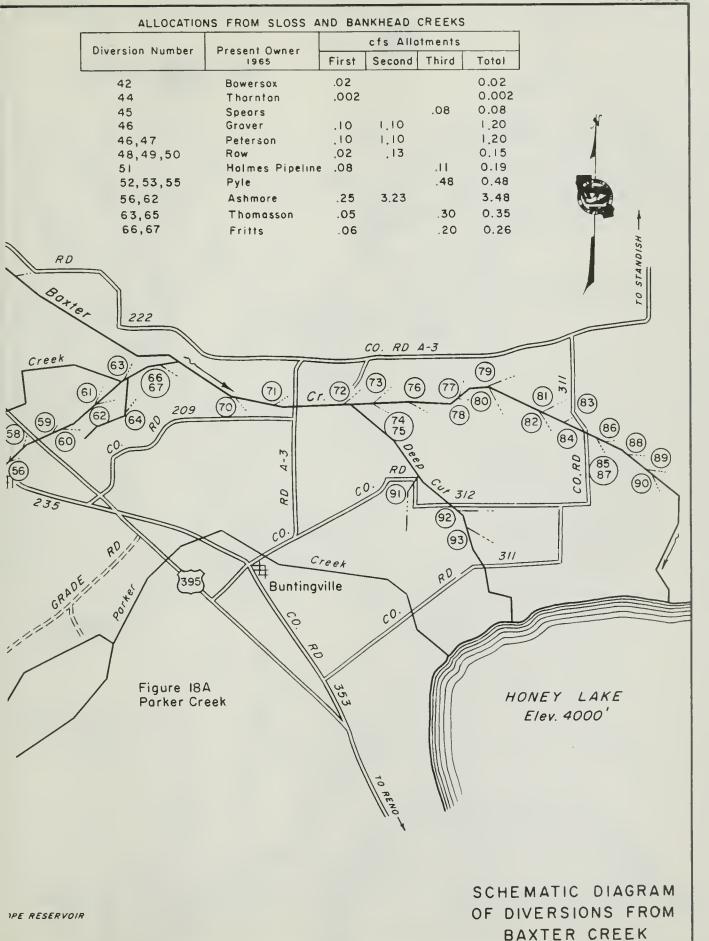
^{*} Beginning of Record - Mean daily flow from April 1 to April 24 was in excess of 100 cfs

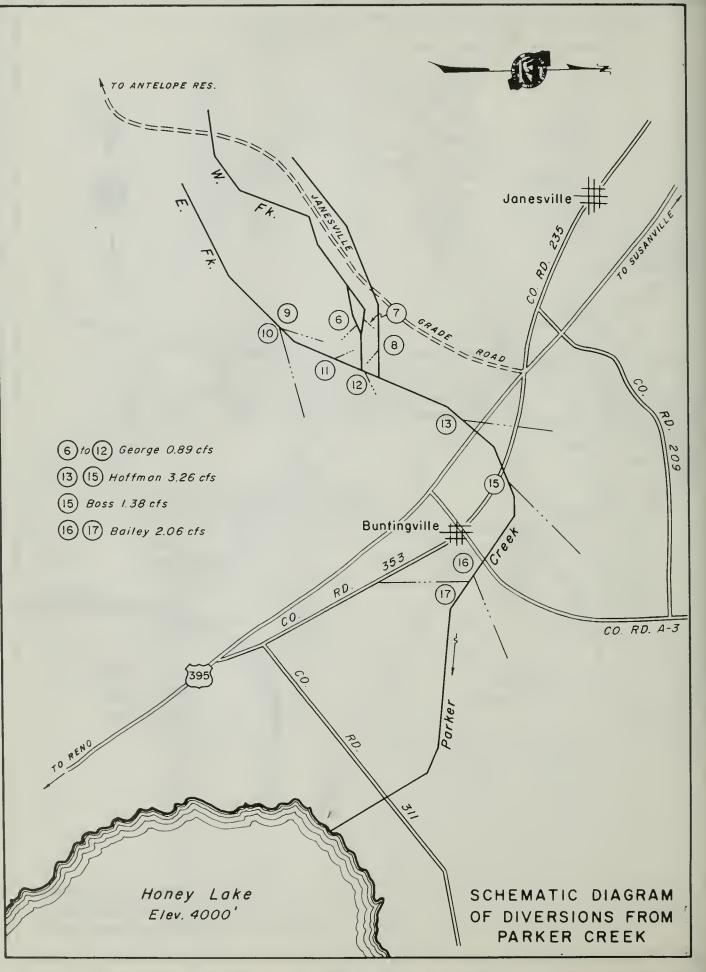
TABLE 57
OPERATION OF MCCOY AND HOG FLAT RESERVOIRS

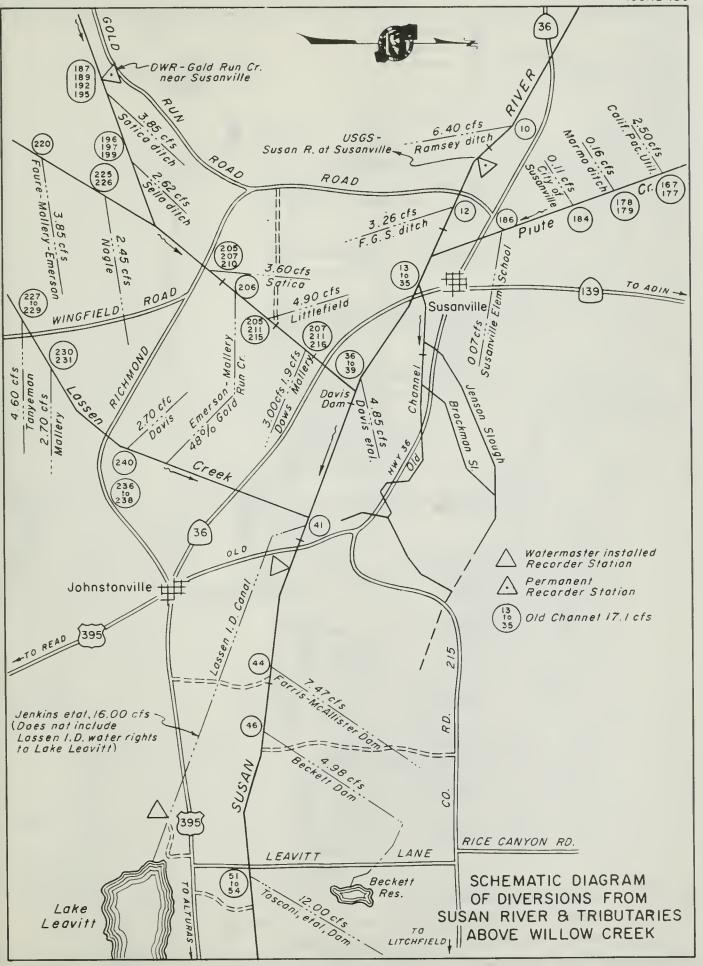
OPERATION OF MCCOY AND HOG FLAT RESERVOIRS									
Day	Releas Susan	River 3 : September :	Hog Flat Release Susan R July :	s to :	Water	from McCoy Res. to La August :	ke Leavitt September	<u>Day</u>	
1 2 3 4 5		28 ¹ / 51 54 51	10 ¹ / 23 22	48 46 44 42 40		40 38 38 36 34	1.2 ¹ / 35 46 44 46	1 2 3 4 5	
6 7 8 9		49 49 49 49 50	22 22 21 35 52	38 35 32 29 26	₂₅ 1/	36 38 34 28 25	43 44 44 43 44	6 7 8 9 10	
11 12 13 14 15	11 ¹ /	49 49 49 49 202/	52 51 51 50 50	23 21 19 16 14	37 47 47 42 38	23 20 18 16 14	45 45 46 45 43	11 12 13 14 15	
16 17 18 19 20	25 25 25 25 25 25		49 49 48 48 47	12 10 8.6 6.4 5.5	42 47 49 45 42	12 11 9.5 8.1 6.2	14 3.5 3.2 2.6 1.0	16 17 18 19 20	
21 22 23 24 25	25 25 25 25 25		46 49 53 52 51	4.2 3.2 2.1 1.0 1.0 ² /	38 36 38 45 27	4.6 4.1 3.2 2.0 1.0 ² /		21 22 23 24 25	
26 27 28 29 30	25 25 25 6.0 ² /		50 49 48 47 46		14 15 25 40 32			26 27 28 29 30 31	
31 Mean Unoff In cre-Feet	678 ng of Rele	1380	2460	1040 End of Re	1650	991 3/ No	1270 Releases Our	Runoff In Acre-Feet	
, Боринии	.P 0. 11010	0000	=/	E 11 0 1 110		2/ 110	Morocoo our		

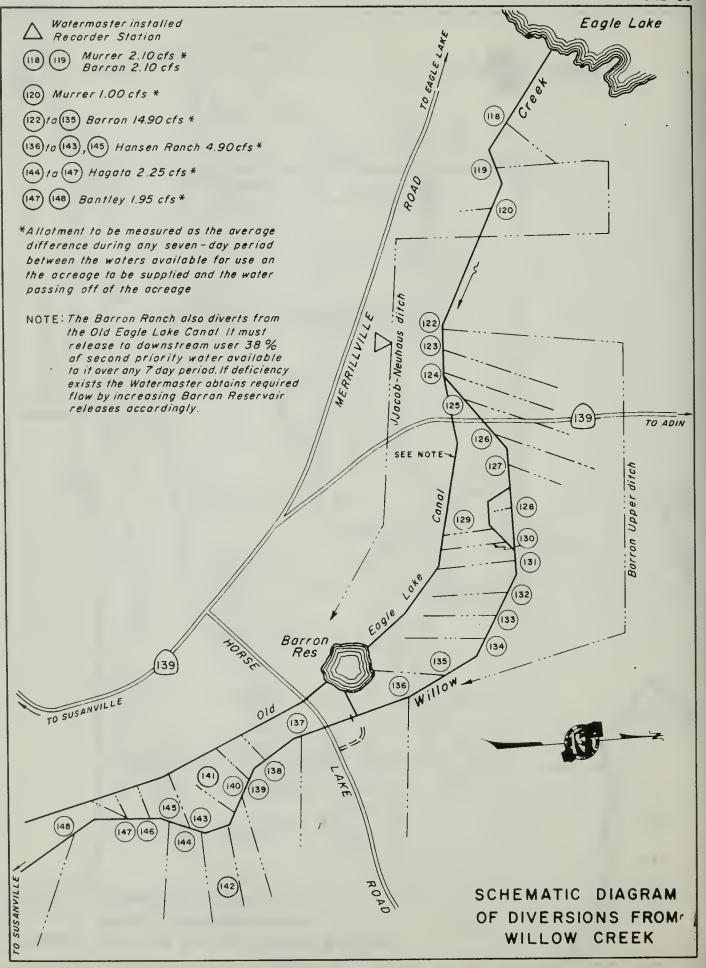








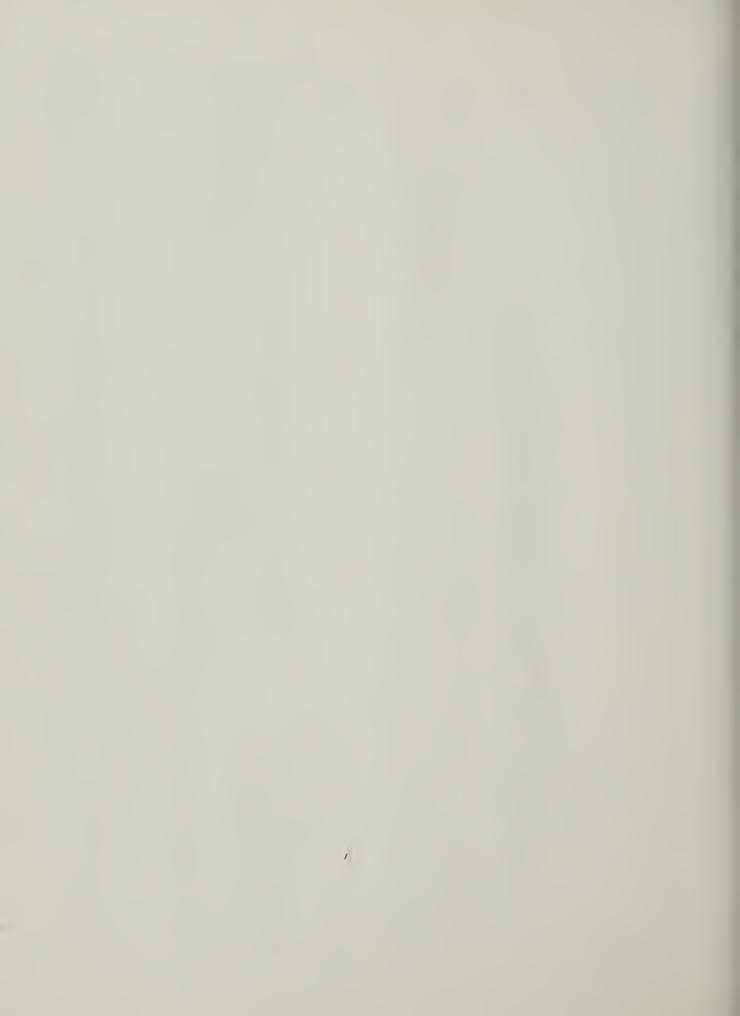


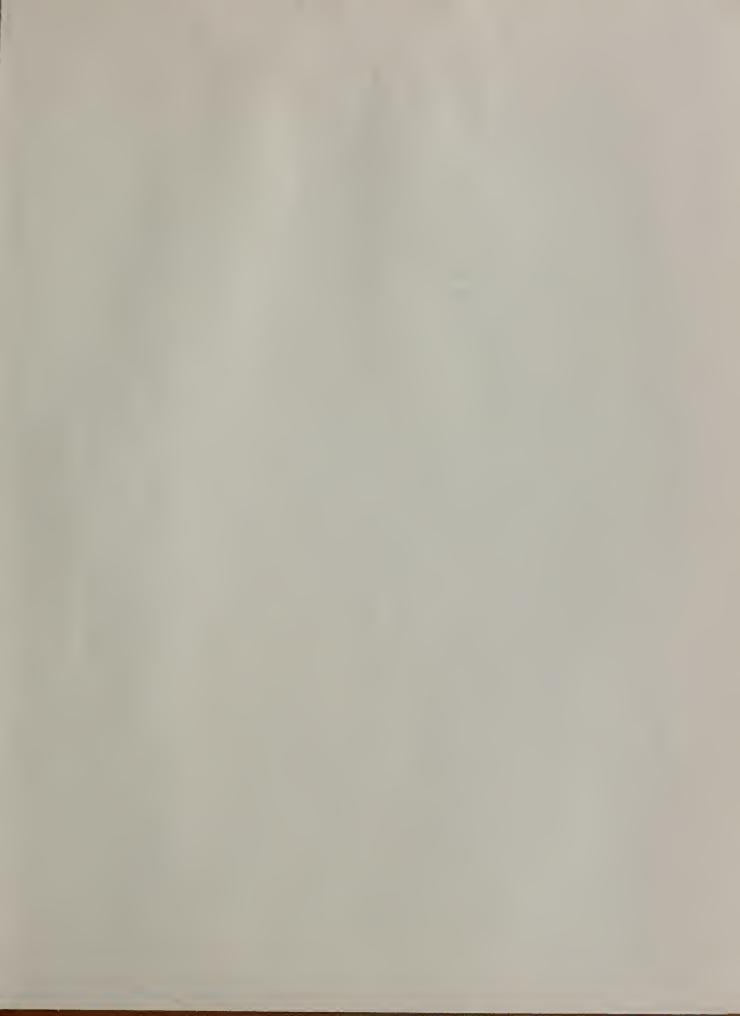




y







THIS BOOK IS DUE ON THE LAST DATE STAMPED BELOW

RENEWED BOOKS ARE SUBJECT TO IMMEDIATE RECALL

LIBRARY, UNIVERSITY OF CALIFORNIA, DAVIS
Book Slip-50m-5,'70 (N672588) 458—A-31/5

Nº 822660

California. Department C2
of Water Resources. A2
Bulletin. no.

TC824 C2 A2 no.177:69 c.2

PHYSICAL SCIENCES LIBRARY

> LIBRARY UNIVERSITY OF CALIFORNIA DAVIS

> > Call Number:

TC824

C2

822660 California. Department

of Water Resources.
Rulletin.

A2 no.177:69

3 1175 01915 2696

